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Willpower Taxes

LÉE ANNE FENNELL*

Self-control and related concepts appear regularly in tax discussions, but often they are invoked hazily or blurred together with other aspects of choice over time. Despite the evident relevance of willpower to consumption patterns, wealth accumulation, and, ultimately, well-being, there is no consensus about whether and how heterogeneity along this dimension should factor into tax policy. There is support in the tax literature for such divergent responses as funneling more resources to low-willpower people, penalizing them for their lapses, and limiting their choices. Whether we should follow one of these approaches, or some other approach entirely, requires a careful analysis of willpower's workings and its connections to well-being. To begin such an analysis, I focus on three categories of costs associated with willpower problems: the failure costs of suboptimal choices, exercise costs stemming from the willpower exertion itself, and erosion costs that relate to changes over time in willpower levels as a result of patterns of exertions and outcomes. With this framework in mind, I consider the effects of existing and proposed tax policy measures on people with different self-control levels. I then consider how menus of regulatory bundles that are designed to induce self-sorting could address willpower heterogeneity.

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INTRODUCTION

Willpower¹ matters to well-being. It also implicates activities—saving, spending, and earning—that fall squarely within the ambit of public finance. Yet there

1. I use the terms “willpower” and “self-control” interchangeably here to refer (roughly) to one’s personal efficacy in pursuing the consumption plan one deems best. Section I.A provides a more complete working definition.

is no consensus about how this feature of human behavior should factor into tax policy. Would an ideal “willpower tax” place a heavier burden on those who exhibit a greater ability to optimally spread their consumption over time (just as income taxes place a heavier burden on those who demonstrate a greater ability to earn money), or would it operate like a sin tax on willpower lapses, placing additional burdens on those who exhibit low self-control? There is support in the tax and public finance literature for each of these approaches, as well as for the simpler expedient of directly limiting choices. In the background is a growing body of social science research suggesting that willpower exertions are literally taxing; at least in the short run, these exertions draw down a limited stock of cognitive resources.² Self-control issues present political complexities as well; more than most behavioral phenomena, willpower lapses touch nerves and evoke sharply inconsistent normative reactions.

The unresolved question of what to do about willpower surfaces regularly in key tax policy debates. Assumptions about self-control carry implications for the choice between consumption and income taxes,³ bear directly on whether tax liability should be assessed on an annual or lifetime basis,⁴ and feature prominently in analyses of public finance mechanisms that carry out intrapersonal transfers through the life cycle.⁵ Further, willpower considerations interact with philosophical questions relevant to tax policy, such as whether we should evaluate well-being in terms of entire lives or shorter temporal “slices,”⁶ or from an ex ante or ex post perspective.⁷ Many other high-profile legal and

2. For a recent review of this literature, see Martin S. Hagger et al., *Ego Depletion and the Strength Model of Self-Control: A Meta-Analysis*, 136 PSYCHOL. BULL. 495 (2010). See also *infra* section I.C.2.

3. For discussion, see the following recent colloquy: Joseph Bankman & David A. Weisbach, *The Superiority of an Ideal Consumption Tax over an Ideal Income Tax*, 58 STAN. L. REV. 1413, 1444–48 (2006) [hereinafter Bankman & Weisbach, *Superiority*]; Daniel Shaviro, *Beyond the Pro-Consumption Tax Consensus*, 60 STAN. L. REV. 745, 784–85 (2007); Joseph Bankman & David A. Weisbach, Reply, *Consumption Taxation Is Still Superior to Income Taxation*, 60 STAN. L. REV. 789, 800–01 (2007) [hereinafter Bankman & Weisbach, *Consumption*].

4. See, e.g., Shaviro, *supra* note 3, at 774–76; Jeffrey B. Liebman, Should Taxes Be Based on Lifetime Income? Vickrey Taxation Revisited 32–37 (Dec. 2003) (unpublished manuscript), available at <http://www.ksg.harvard.edu/jeffreyliebman/vickreydec2003.pdf>.

5. Social Security is an important focal point for such analysis. See, e.g., Martin Feldstein, *The Optimal Level of Social Security Benefits*, 100 Q.J. ECON. 303 (1985); Çağrı S. Kumru & Athanasios C. Thanopoulos, *Social Security and Self Control Preferences*, 32 J. ECON. DYNAMICS & CONTROL 757 (2008); Louis Kaplow, *Myopia and the Effects of Social Security and Capital Taxation on Labor Supply* (Nat'l Bureau of Econ. Research, Working Paper No. 12452, 2006). In addition, progressive taxation produces intrapersonal as well as interpersonal redistribution—an effect that can be heightened or dampened through measures like age-based taxation. See, e.g., A. Mitchell Polinsky, *Imperfect Capital Markets, Intertemporal Redistribution, and Progressive Taxation*, in REDISTRIBUTION THROUGH PUBLIC CHOICE 229, 246–48, 250 (Harold Hochman & George E. Peterson eds., 1974); Lee Anne Fennell & Kirk J. Stark, *Taxation over Time*, 59 TAX L. REV. 1, 46–51 (2005).

6. See, e.g., Matthew D. Adler, *Well-Being, Inequality, and Time: The Time-Slice Problem and Its Policy Implications* (Univ. of Pa. Law Sch. Scholarship at Penn Law, Paper No. 169, 2007), http://lsr.nellco.org/upenn_wps/169/.

7. See, e.g., Matthew D. Adler & Chris William Sanchirico, *Inequality and Uncertainty: Theory and Legal Applications*, 155 U. PA. L. REV. 279 (2006) (discussing “the ‘ex ante/ex post’ problem”); *infra*

policy issues raise self-control questions that are (or might be) addressed through tax and public finance instruments—including choices about welfare benefits,⁸ consumer credit regulation,⁹ and the treatment of “vice” products like cigarettes¹⁰ and fatty foods.¹¹

The significance of the topic has not gone unnoticed. In recent years, the tax and public finance literature has increasingly taken account of complexities of human behavior, including time-inconsistent preferences and self-control issues.¹² A large body of work has empirically examined and mathematically modeled many different aspects of the willpower question.¹³ But the legal literature lacks a systematic and accessible framework for putting these pieces together to inform tax policy. This Article makes a start at constructing such a framework, placing particular emphasis on the issue of willpower heterogeneity.

The analysis here proceeds in four steps. Part I examines why and how willpower matters to well-being. This inquiry requires delving into how self-control works, how it is developed, how it is deployed, and how it can become depleted. It is also necessary to distinguish willpower from a welter of distinct but often conflated matters such as pure time preferences, risk preferences, and subjectively preferred but societally disfavored consumption plans. From this discussion, I distill three categories of costs associated with willpower problems: failure costs associated with suboptimal choices, exercise costs stemming from the willpower exertion itself, and erosion costs involving changes over time in willpower levels that result from patterns of exertions and outcomes.¹⁴

section I.B.3. Although Adler and Sanichirico focus primarily on the wedge that uncertainty drives between the two points of evaluation, *ex ante/ex post* evaluative questions are raised in the tax realm by different consumption outcomes, including those generated by savings choices. *See* Alvin Warren, *Would a Consumption Tax Be Fairer than an Income Tax?*, 89 YALE L.J. 1081, 1097–101 (1980); *see also* Bankman & Weisbach, *Superiority*, *supra* note 3, at 1441–44; Mark Kelman, *Time Preference and Tax Equity*, 35 STAN. L. REV. 649, 654–56 (1983).

8. Consider, for example, the practice of offering welfare applicants a lump-sum “diversion” payment in exchange for forgoing Temporary Assistance for Needy Families (TANF) payments for a period of time. *See, e.g.*, GRETCHEN ROWE, MARY MURPHY, & EI YIN MON, WELFARE RULES DATABOOK: STATE TANF POLICIES AS OF JULY 2009, at 32–35 tbl.I.A.1 (2010), available at <http://www.urban.org/UploadedPDF/412252-Welfare-Rules-Databook.pdf> (detailing state diversion programs).

9. *See, e.g.*, Oren Bar-Gill, *Seduction by Plastic*, 98 NW. U. L. REV. 1373 (2004).

10. *See, e.g.*, Ted O’Donoghue & Matthew Rabin, *Studying Optimal Paternalism, Illustrated by a Model of Sin Taxes*, 93 AM. ECON. REV. PAPERS AND PROC. 186 (2003); Jay Bhattacharya & Darius Lakdawalla, *Time-Inconsistency and Welfare* (Nat’l Bureau of Econ. Research, Working Paper No. 10345, 2004).

11. *See, e.g.*, Jeff Strnad, *Conceptualizing the “Fat Tax”: The Role of Food Taxes in Developed Economies*, 78 S. CAL. L. REV. 1221 (2005); Sarah McBride, *Exiling the Happy Meal*, WALL ST. J., July 22, 2008, at A14 (listing measures and proposals to regulate fatty foods in a number of cities); Anemona Hartocollis, *Failure of State Soda Tax Plan Reflects Power of an Antitax Message*, N.Y. TIMES, July 2, 2010, at A14 (discussing a failed attempt at soda taxation in New York and similar efforts elsewhere).

12. *See, e.g.*, BEHAVIORAL PUBLIC FINANCE (Edward J. McCaffery & Joel Slemrod eds., 2006); *see also* sources cited *infra* Parts II and III (connecting self-control issues to tax policy questions).

13. For citations and discussion of this literature, see Part I. For a recent overview, see generally Lee Anne Fennell, *Willpower and Legal Policy*, 5 ANN. REV. L. & SOC. SCI. 91 (2009).

14. *See infra* section I.C.

With this framework in mind, I consider how tax policy might best respond to self-control problems, given heterogeneity in self-control levels. Part II abstracts from real-world difficulties in observing willpower levels to consider three basic approaches: compensatory payments, penalties for lapses, and restrictions on choice. In Part III, I examine how existing and proposed tax policy choices might (intentionally or not) generate or eliminate advantages or disadvantages for people with different willpower levels. Finally, in Part IV, I consider mechanisms that could reduce the informational burdens associated with willpower interventions. Specifically, I investigate whether it might be possible to induce taxpayers to self-sort into high-willpower and low-willpower groupings by offering a choice between two regulatory bundles that would be differentially attractive to the two groups.

Before beginning, a caveat is in order. My project here is a limited one. Willpower is not the only—or even necessarily the most important—cognitive feature that is relevant to tax policy. Willpower heterogeneity interacts with many other forms of heterogeneity (in ability, earning patterns, time preferences, consumption pattern preferences, and so on) in tremendously complex ways. Self-control problems also interact with—and potentially counteract—a variety of other cognitive biases and errors.¹⁵ I do not attempt to model the interaction of these factors or to say anything prescriptive about what would be the best approach for tax policy, all things considered. Instead, I focus on just one piece of the puzzle and examine how and why it matters. Even within that narrow compass, my efforts here are necessarily tentative; much depends on empirical questions that have not yet received definitive answers. Nonetheless, laying out the relevant considerations and specifying their implications clears a path for future work.

I. WILLPOWER AND WHY IT MATTERS

A common lament is that people behave myopically—saving too little, consuming too hastily, indulging in bad habits, and, in general, too heavily discounting the impact of their present choices on their future selves.¹⁶ But this pattern is hardly universal. Indeed, some people have the opposite problem, hyperopia—an overweighting of the future relative to the present that manifests itself in behaviors like extreme miserliness or workaholism.¹⁷ Although these

15. See, e.g., Gregory Besharov, *Second-Best Considerations in Correcting Cognitive Biases*, 71 S. ECON. J. 12 (2004).

16. See, e.g., David Brooks, *The Great Seduction*, N.Y. TIMES, June 10, 2008, at A23 (contending that it is now “considered normal to play the debt game and imagine that decisions made today will have no consequences for the future”). For an overview of myopia and discounting, see JONATHAN BARON, *THINKING AND DECIDING* 470–80 (3d ed. 2000).

17. See, e.g., Ran Kivetz & Itamar Simonson, *Self-Control for the Righteous: Toward a Theory of Precommitment to Indulgence*, 29 J. CONSUMER RES. 199 (2002); George Loewenstein, *Anticipation and the Valuation of Delayed Consumption*, 97 ECON. J. 666 (1987); Daniel S. Hamermesh & Joel B. Slemrod, *The Economics of Workaholism: We Should Not Have Worked on This Paper*, B.E. J. ECON.

patterns could be produced by stable preferences (such as for always consuming earlier rather than later, or vice versa), people often make choices about consumption that are at odds with what they claim to want for themselves.¹⁸ We know that people grapple with intertemporal dilemmas, and that they do so with varying degrees of self-awareness and success.¹⁹

Because self-control varies among individuals and can have marked effects on well-being over the life cycle, its relevance for public policy in general and tax policy in particular is intuitive. Whether we focus on the tax system as a broad-based mechanism for raising revenue while pursuing a given social welfare function²⁰ or on the capacity of particular tax instruments to selectively alter incentives,²¹ willpower matters. Pinning down precisely how and why it matters for tax policy requires understanding both how willpower lapses disrupt people's ability to translate money into well-being and how taxation choices can exacerbate or mitigate those effects. To start, we need a working definition of willpower itself.

A. DEFINING WILLPOWER

Intertemporal decision making is a vast and complex field of study,²² and one in which terms have not always been used consistently.²³ Although definitions vary, I will use the term "willpower" in this Article to refer to one's personal efficacy in carrying out the consumption path that one (from a cool, reflective,

ANALYSIS & POL'Y (Jan. 16, 2008), <http://www.bepress.com/cgi/viewcontent.cgi?article=1793&context=bejeap>; Lee Anne Fennell, *Hyperopia in Public Finance*, in BEHAVIORAL PUBLIC FINANCE, *supra* note 12, at 141.

18. See, e.g., George-Marios Angeletos et al., *The Hyperbolic Consumption Model: Calibration, Simulation, and Empirical Evaluation*, in TIME AND DECISION: ECONOMIC AND PSYCHOLOGICAL PERSPECTIVES ON INTERTEMPORAL CHOICE 517, 517–18 (George Loewenstein et al. eds., 2003) (reviewing evidence on perceived undersaving); B. Douglas Bernheim, *Do Households Appreciate Their Financial Vulnerabilities? An Analysis of Actions, Perceptions, and Public Policy*, in TAX POLICY AND ECONOMIC GROWTH 3, 10–12 (1995) (investigating disparities between "target" and "actual" savings rates based on survey data and finding that "[t]he median baby boomer believes that it would be appropriate to triple his or her rate of saving for retirement"); Scott I. Rick et al., *Tightwads and Spendthrifts*, 34 J. CONSUMER RES. 767, 770 & tbl.1 (2007) (presenting survey results in which many people self-report problems with underspending or overspending).

19. See, e.g., Ted O'Donoghue & Matthew Rabin, *Self-Awareness and Self-Control*, in TIME AND DECISION, *supra* note 18, at 217; see also *infra* text accompanying note 42.

20. The literature on optimal tax theory views the goal of a tax system as minimizing deadweight loss while raising a specified amount of revenue and fulfilling the distributive objectives associated with a given social welfare function. See, e.g., William M. Gentry, *Optimal Taxation*, in THE ENCYCLOPEDIA OF TAXATION AND TAX POLICY 261 (Joseph J. Cordes et al. eds., 1999).

21. See *infra* section III.C (discussing Pigouvian taxes).

22. For a concise intellectual history of intertemporal choice, see George Loewenstein, *The Fall and Rise of Psychological Explanations in the Economics of Intertemporal Choice*, in CHOICE OVER TIME 3 (George Loewenstein & Jon Elster eds., 1992). Work in this field has proliferated in recent years, generating numerous competing models for time-related choice. See, e.g., Shane Frederick et al., *Time Discounting and Time Preference: A Critical Review*, in TIME AND DECISION, *supra* note 18, at 13.

23. See, e.g., Frederick et al., *supra* note 22, at 61–62 & fig.1.4; *id.* at 73–74 n.42 (listing nineteen different terms used in discussing choice over time).

composite, or long-run perspective)²⁴ deems to be the best of those that lie open. In other words, willpower operates within the gap between the consumption that one is tempted or habituated to undertake and some self-identified and otherwise attainable ideal.²⁵ Self-control problems must be carefully distinguished both from cognitive errors that keep people from recognizing what is best for them to do and from preferences, including time-related preferences, that cause behavior to diverge from what observers might think best. A few clarifications will help flesh out these distinctions.

First, willpower relates to individuals' subjective optimization efforts and thus does not depend on societal judgments about the desirability of any particular consumption plan.²⁶ As a corollary of this point, low willpower can produce not only behavior we might identify as myopic (such as overspending), but also behavior that is hyperopic (such as oversaving).²⁷ Defining willpower in terms of subjective consumption goals rather than by reference to an objective benchmark enables us to draw a distinction between lapses of willpower and mere preferences. An unrepentant spendthrift (or overeater or drug user)²⁸ may exhibit consumption patterns that others would view as improvident, but unless she herself perceives that another consumption path would be better, her behavior cannot properly be viewed as a failure of willpower.²⁹

Relatedly, willpower is used here in a manner synonymous with self-

24. A two-self model is frequently used to capture the conflict that calls for the exercise of willpower. See *infra* notes 31–33 and accompanying text.

25. This notion of a “gap” between preferred and actual consumption appears regularly in the literature. See, e.g., John Ameriks et al., *Measuring Self-Control Problems*, 97 AM. ECON. REV. 966, 967 (2007) (using an “expected-ideal (EI) gap” in people’s consumption allocation choices to measure self-control problems); David I. Laibson, *Hyperbolic Discount Functions, Undersaving, and Savings Policy* 2 (Nat’l Bureau of Econ. Research, Working Paper No. 5635, 1996) (identifying a “sophisticated saver” with a known self-control problem with the following statement: “Regardless of which tax regime the government adopts, I expect to experience a large gap between my actual saving level and my normative saving level.”).

26. To be sure, an observer might summarily attribute a lack of willpower to any individual who fails to achieve the consumption patterns that the observer herself deems normatively desirable. But a divergence between an observer’s preferences and those of a chooser cannot be meaningfully conceptualized as a willpower issue unless dissonance is experienced by the chooser himself.

27. Jon Elster, *Introduction*, in *THE MULTIPLE SELF* 1, 6 (Jon Elster ed., 1986) (observing that “compulsive, rigid, rule-governed behaviour can also be a form of weakness of will”) (citing DONALD DAVIDSON, *ESSAYS ON ACTIONS AND EVENTS* 30 (1980)); see also sources cited *supra* note 17.

28. Even drug addiction can be modeled as the product of rational choice. See Gary S. Becker & Kevin M. Murphy, *A Theory of Rational Addiction*, 96 J. POL. ECON. 675 (1988). Of course, scholars have questioned the extent to which addiction actually fits the rational model. See, e.g., Jonathan Gruber & Botond Köszegi, *Is Addiction “Rational”? Theory and Evidence*, 116 Q.J. ECON. 1261 (2001).

29. However, the preferences that cause an individual to view a plan of extreme consumption as optimal might be viewed as “expensive tastes” that make a person less well off than she would be if she did not have them. For discussion of the distributive justice implications of expensive tastes, see Ronald Dworkin, *What is Equality? Part 2: Equality of Resources*, 10 PHIL. & PUB. AFF. 283, 301–04 (1981); Daniel Markovits, *How Much Redistribution Should There Be?*, 112 YALE L.J. 2291, 2313–23 (2003). I thank Noah Zatz for suggesting this connection.

control;³⁰ it therefore implies at least the intermittent existence of an internal would-be “controller” who purports to have superior insight into the best available consumption plan for the individual.³¹ Thus, willpower problems are premised on the simultaneous existence of two “selves” who exhibit divergent preferences.³² These two selves have been characterized in various ways but generally track long-run and short-run perspectives.³³ Their willpower-mediated interactions can produce reversals in preferences over time—that is, time-inconsistent preferences³⁴—as one and then the other gains the upper hand.

These time-inconsistent preferences (which are often, but not always, explained by reference to hyperbolic discounting)³⁵ do not inevitably signify willpower lapses, but they are often symptomatic of them. To take a standard example, many people who would prefer \$105 in 366 days to \$100 in 365 days would turn down the chance for \$105 tomorrow in favor of \$100 today—even though the length of the delay and the difference in the rewards is identical in

30. Usages vary. Compare Hagger et al., *supra* note 2, at 496 n.1 (listing “willpower” among the “terms often considered synonymous with self-control”), with Roy F. Baumeister & Kathleen D. Vohs, *Willpower, Choice, and Self-Control*, in *TIME AND DECISION*, *supra* note 18, at 201, 202–04 (using “willpower” to refer to a particular theory of self-control).

31. See, e.g., Elster, *supra* note 27, at 6 (explaining that “weakness of will” is a concept that “requires both that there is a conflict between two opposed wishes, and that the wish that the person himself judges to be the more decisive loses out”); George Loewenstein, *Willpower: A Decision-Theorist’s Perspective*, 19 L. & PHIL. 51, 52 (2000) (“The concept of willpower suggests that there is some part of the self that needs to be controlled to do what another part of the self wants.”).

32. Richard H. Thaler & H.M. Shefrin, *An Economic Theory of Self-Control*, 89 J. POL. ECON. 392, 393–94 (1981) (quoting DONALD MCINTOSH, *THE FOUNDATIONS OF HUMAN SOCIETY* (1969) (observing that the notion of self-control would be “paradoxical” without the concept of two selves)).

33. See, e.g., Richard A. Posner, *Are We One Self or Multiple Selves? Implications for Law and Public Policy*, 3 LEGAL THEORY 23, 25 (1997) (discussing conflicts between the “future-oriented” or “adult” self and the “present-oriented” or “child” self); Thaler & Shefrin, *supra* note 32, at 394 (characterizing the two selves as a “planner” and a “doer”); see also Drew Fudenberg & David K. Levine, *A Dual-Self Model of Impulse Control*, 96 AM. ECON. REV. 1449 (2006) (discussing past two-self models and presenting one in which a long-run self interacts with a series of short-run selves); Ted O’Donoghue & Matthew Rabin, *Doing It Now or Later*, 89 AM. ECON. REV. 103, 113 (1999) (modeling a “long-run perspective” in which each period is weighted equally). A related idea is that of “hot states” and “cold states”; one might view the former as instances in which the long-range or “planner” self is given little deference. See George Loewenstein, *Emotions in Economic Theory and Economic Behavior*, 90 AM. ECON. REV. (PAPERS & PROC.) 426, 428–29 (2000) (discussing the “hot/cold empathy gap” as an inability to predict this shift in internal control). For a recent summary of dual-self models, see Gharad Bryan et al., *Commitment Devices*, 2 ANN. REV. ECON. 671, 678 (2010).

34. Economic work on time inconsistency traces back to R.H. Strotz, *Myopia and Inconsistency in Dynamic Utility Maximization*, 23 REV. ECON. STUD. 165 (1955). For a helpful review of work on time-discounting and time-inconsistent preferences, see Frederick et al., *supra* note 22.

35. On hyperbolic discounting, see, for example, GEORGE AINSLIE, *BREAKDOWN OF WILL* 30–32 & fig.2B (2001) (describing and depicting hyperbolic discounting); David Laibson, *Golden Eggs and Hyperbolic Discounting*, 112 Q.J. ECON. 443, 446–51 (1997) (modeling preference reversals using a quasi-hyperbolic discount function). For alternative explanations of preference reversals, see, for example, Daniel Read, *Is Time-Discounting Hyperbolic or Subadditive?*, 23 J. RISK & UNCERTAINTY 5 (2001), and Ariel Rubinstein, *“Economics and Psychology”? The Case of Hyperbolic Discounting*, 44 INT’L ECON. REV. 1207 (2003).

the two cases.³⁶ Such preference reversals may occur if the internal controller who initially selected the larger, later reward lacks the power to stop immediate consumption when it becomes available. However, if someone naïvely switches preferences as a choice approaches and neither foresees that this will occur nor understands that it undermines her own long-run plans, the problem does not, strictly speaking, implicate willpower. Similarly, forms of myopia or hyperopia that merely alter the perceived size of future rewards without producing any awareness of the distortion would not represent willpower shortfalls.³⁷

Finally, low willpower is distinct from, although entangled with, other cognitive and computational limits.³⁸ Such limits, along with imperfect information and uncertainty about the future, may cause people to guess wrong about the best available pattern of consumption and aim their willpower efforts at the wrong target. Willpower lapses might in some cases fortuitously offset these mispredictions, as where a person erroneously believes she should save more than is really optimal.³⁹ In other cases, errors might help reduce willpower lapses, as where people inflate the harm of an action like smoking.⁴⁰ More worrisome is the possibility that a misprediction will magnify a willpower lapse, as where a worker wrongly assumes she will have an upward-trending income profile and yet succumbs to spending that is excessive even by her own calculations. Significantly, however, the increment of harm caused by the miscalculation cannot be attributed to low willpower.⁴¹

One of the areas in which people may miscalculate, of course, is in gauging their own future susceptibility to self-control problems. A person who does not recognize in advance the existence or extent of her willpower vulnerabilities can

36. See, e.g., Frederick et al., *supra* note 22, at 25; O'Donoghue & Rabin, *supra* note 33, at 103 (discussing "present-biased preferences").

37. See Elster, *supra* note 27, at 15–16 (observing that "myopia need not be a case of weakness of the will" and citing instances in which people have consistently short-sighted preferences and do not perceive any intertemporal dilemma). Nonetheless, "myopia" and "hyperopia" are commonly used to indicate self-acknowledged deviations from a better available consumption path.

38. See B. Douglas Bernheim, *Taxing and Saving* 36 (Nat'l Bureau of Econ. Research, Working Paper No. 7061, 1999) (distinguishing self-control issues from those involving bounded rationality and explaining that the latter "arise from the complexity of intertemporal planning"). However, the two do interact. See *id.* at 38 (noting that self-control models involve complex interactions among current and future selves that "accentuate the problems associated with cognitive limitations").

39. See, e.g., Besharov, *supra* note 15, at 12–13 (citing Matthew Rabin, *Comment*, in BEHAVIORAL DIMENSIONS OF RETIREMENT ECONOMICS 247 (Henry J. Aaron ed., 1999)); see also Douglas Glen Whitman & Mario J. Rizzo, *Paternalist Slopes*, 2 N.Y.U. J. L. & LIBERTY 411, 427–28 (2007) (citing Besharov and discussing the potential for offsetting biases).

40. Indeed, people may choose to remain "strategically ignorant" about actual risks if their inflated beliefs help to fortify their own willpower resolve. See Juan D. Carrillo & Thomas Mariotti, *Strategic Ignorance as a Self-Disciplining Device*, 67 REV. ECON. STUD. 529 (2000).

41. Disaggregating the harms caused by willpower lapses and other errors will not always be so easy, however. Suppose, for example, that someone erroneously subscribes to an overly austere budget and then suffers a willpower lapse that raises her spending far above her (actual) optimal target. Here, we cannot rule out the possibility that the predictive error may have triggered the lapse and that the individual would have been able to comply with an optimally-set target.

still suffer from low willpower.⁴² All that is necessary is that the person have in mind a (subjectively) superior choice before failing to opt for it. Although a miscalculation about willpower is not itself a failure of willpower, it can undermine remedial efforts. For example, a person who does not recognize her own future willpower vulnerabilities may fail to precommit when doing so would be in her best interest.⁴³ This predictive error about willpower may, however, offset other kinds of predictive errors. Someone who fails to precommit because she overestimates her future resolve may end up gaining as a result if the course to which she would have precommitted turns out to be a mistake.⁴⁴

Defining willpower in the way I have here makes failures of willpower deeply subjective, internal phenomena.⁴⁵ This understanding fits well with how most people understand the term, but it also raises issues for public policy. Because willpower lapses are observationally equivalent to intertemporal choices that are produced by preferences or errors, willpower can only be treated as a distinct phenomenon if it is possible to develop workable proxies, information-forcing mechanisms, or other tools to improve or substitute for direct observation. Even more fundamentally, however, we need to pinpoint the kinds of harms willpower problems cause before we can determine the policy relevance of willpower heterogeneity. The next sections explore that question.

B. SELF-CONTROL AND CONSUMPTION CHOICES OVER TIME

To understand the significance of willpower for well-being, it is necessary to step back and consider consumption over time more generally.

1. The Life-Cycle Model

The dominant economic models for understanding consumption decisions over time are the permanent income hypothesis and the related life-cycle model (which, although they differ in some particulars, I will here refer to collectively as the “life-cycle hypothesis”).⁴⁶ On this account, an individual’s consumption

42. See, e.g., O’Donoghue & Rabin, *supra* note 33, at 104 (distinguishing those who are naïve about their self-control problems from those who are sophisticated and recognize the problem in advance); O’Donoghue & Rabin, *supra* note 19, at 219–20 (considering a spectrum of self-awareness that includes partial as well as full naïveté about self-control problems).

43. See *infra* section IV.A (discussing this issue and noting some ways that the self-selection problem might be addressed).

44. In such a case, observers may be unable to tell whether a changed course of action is a rational response to new information or an unforeseen lapse of willpower. See *infra* note 246.

45. This is not to say that the exercise of willpower might not be observable to some extent through neuroscience, only that it cannot be reliably inferred from behavioral outcomes. See *infra* note 93; cf. B. Douglas Bernheim & Antonio Rangel, *Choice-Theoretic Foundations for Behavioral Welfare Economics*, in *THE FOUNDATIONS OF POSITIVE AND NORMATIVE ECONOMICS: A HANDBOOK* 155, 189 (Andrew Caplin & Andrew Schotter eds., 2008) (noting the authors’ divergent views about the likely future role of neuroscience in “officiating between conflicting choices”).

46. See MILTON FRIEDMAN, *A THEORY OF THE CONSUMPTION FUNCTION* 25–31 (1957) (presenting the permanent income hypothesis); Franco Modigliani & Richard Brumberg, *Utility Analysis and the Consumption Function: An Interpretation of Cross-Section Data*, in *POST-KEYNESIAN ECONOMICS* 388

in a given period is not tied to that period's income alone, but rather represents an optimal consumption level given the person's lifetime earnings.⁴⁷ Whether income arrives steadily or irregularly, people calibrate their consumption in the same way—or so the story goes. This activity is referred to as “consumption smoothing” based on the commonplace assumption that optimal consumption is likely to be significantly smoother than earning patterns. If people experience diminishing marginal returns to consumption within each period and the height and shape of the marginal utility curve remains unchanged over the life cycle, people will do best by spreading out their consumption rather than letting it track income or intentionally piling it into large heaps.⁴⁸ Of course, marginal returns to consumption are likely to be higher in some periods than others, so that perfect smoothing will not be optimal.⁴⁹ For example, if we examine matters at the household level, we would need to take into account periods in which dependent children are present.⁵⁰ It is also possible that certain large lumps of consumption will be so highly valued by some individuals that the opposite of consumption smoothing—consumption lumping—would be optimal.⁵¹

Despite these complications and the concomitant difficulty in discerning whether any particular real-world consumption pattern is optimal,⁵² research suggests that actual consumption is more sensitive to the timing of income streams than would be predicted by the life-cycle model.⁵³ Although willpower shortfalls doubtless play a role, there are many other reasons why this might be the case. First, imperfect capital markets present liquidity constraints; thus, people are not always able to move money earlier in time.⁵⁴ Similarly, incomplete insurance markets may force people to push more money into the future as

(Kenneth K. Kurihara ed., 1955) (presenting the life-cycle model); *see also* ALAN E.H. SPEIGHT, CONSUMPTION, RATIONAL EXPECTATIONS AND LIQUIDITY: THEORY AND EVIDENCE 52–53 (1989) (discussing these models and some differences between them).

47. *See, e.g.*, ANGUS DEATON, UNDERSTANDING CONSUMPTION 26 (1992) (according to the life-cycle hypothesis, “consumption patterns are shaped by tastes and life-cycle needs, and not by the temporal pattern of life-cycle labor income”); Modigliani & Brumberg, *supra* note 46, at 392 (“The rate of consumption in any given period is a facet of a plan which extends over the balance of the individual's life, while the income accruing within the same period is but one element which contributes to the shaping of such a plan.”).

48. *See, e.g.*, Fennell & Stark, *supra* note 5, at 8 & n.26.

49. *See, e.g.*, DEATON, *supra* note 47, at 5, 26.

50. *See id.* at 5 (suggesting that because marginal utility of consumption is higher for a household that includes more people, “the life-cycle pattern of household consumption can be expected to have the same general shape as the life-cycle pattern of household size”).

51. *See, e.g.*, Shaviro, *supra* note 3, at 766.

52. *See, e.g.*, Deborah M. Weiss, *Paternalistic Pension Policy: Psychological Evidence and Economic Theory*, 58 U. CHI. L. REV. 1275, 1310–11 (“Any argument that a given savings level is or is not optimal must ultimately appeal to intuitions, such as that about the low likelihood that steeply declining lifetime consumption maximizes utility.”).

53. *See, e.g.*, DEATON, *supra* note 47, at 87–103; Angeletos et al., *supra* note 18, at 534–36; Fennell & Stark, *supra* note 5, at 16–20.

54. *See, e.g.*, DEATON, *supra* note 47, at 162–63; Polinsky, *supra* note 5, at 233–35.

a precaution than they would if all uncertainty could be adequately hedged.⁵⁵ Conversely, risk and uncertainty might at times push people toward consuming earlier than they would otherwise prefer. For example, one reason for consuming now rather than later is that one cannot be sure one will be alive later to engage in consumption.⁵⁶

Even within the realm of cognition, more is going on than willpower. Hersh Shefrin and Richard Thaler's "behavioral life-cycle hypothesis," which incorporates widely observed cognitive phenomena not accounted for in the standard life-cycle model, takes into account not only time-inconsistent preferences but also features like optimism and mental accounting that may drive a wedge between optimal and actual consumption.⁵⁷ Some divergences from the life-cycle model's predictions stem from computational limits; faced with the enormous complexity of arranging one's lifetime consumption, people often resort to simple heuristics or rules of thumb.⁵⁸ Uncertainty can also interact with cognitive biases to produce choices that deviate from the predictions of the life-cycle model. People may mispredict how their marginal utility of consumption will change in the future—or how it might do so contingent on uncertain

55. See, e.g., KENNETH J. ARROW, *Insurance, Risk and Resource Allocation*, in *ESSAYS IN THE THEORY OF RISK-BEARING* 134, 134–43 (1971) (discussing the limitations of insurance and other risk-shifting institutions); DEATON, *supra* note 47, at 34–37, 197; Christopher D. Carroll, *Buffer-Stock Saving and the Life Cycle/Permanent Income Hypothesis*, 112 Q.J. ECON. 1, 4 (1997) (discussing implications of a "buffer-stock model . . . in which the principal purpose of holding wealth is so that it can be used to absorb random shocks to income"); Shaviro, *supra* note 3, at 772–73. Borrowing constraints interact with risk. See DEATON, *supra* note 47, at 197 (describing "[t]he ability to borrow in bad times" as "an insurance device for at least some consumers, and if this mechanism is closed off, additional provision must be made for such eventualities"). More generally, the distributive work of taxation is only necessary because of incomplete insurance markets (here, for ability). Shaviro, *supra* note 3, at 757 (citing DANIEL SHAVIRO, *MAKING SENSE OF SOCIAL SECURITY REFORM* 52 (2000)); see Dworkin, *supra* note 29, at 314–23 (examining the implications of hypothetical insurance markets for skill); David A. Weisbach, *Toward a New Approach to Disability Law*, 2009 U CHI. LEGAL F. 47, 74 ("Designing a tax system . . . is very much like designing an optimal insurance policy." (footnote omitted)).

56. See, e.g., Kelman, *supra* note 7, at 660–69. Similarly, choosers who are uncertain about whether the person or entity offering them an intertemporal choice will really follow through on the delayed alternative as promised may find it safer to take a smaller reward immediately, even if they would prefer the larger, later reward. This seems to be the best explanation of the purported "puzzle" of people failing to buy energy efficient appliances whose higher initial cost would be more than repaid by cheaper operating costs. See George Loewenstein & Dražen Prelec, *Anomalies in Intertemporal Choice: Evidence and an Interpretation*, in *CHOICE OVER TIME*, *supra* note 22, at 119, 137–38 (citing studies inferring high discount rates based on choices about consumer durables). Well-acquainted with puffery and claims that turn out not to match up with their own experiences, consumers may find it safer to take the savings up front rather than count on them to materialize later. See, e.g., Bankman & Weisbach, *Superiority*, *supra* note 3, at 1446 (suggesting that studies like those on energy efficient appliances often "involve choices in which the discount rate may be confounded by a lack of information").

57. Hersh M. Shefrin & Richard H. Thaler, *The Behavioral Life-Cycle Hypothesis*, 26 ECON. INQUIRY 609 (1988).

58. See, e.g., Russell B. Korobkin & Thomas S. Ulen, *Law and Behavioral Science: Removing the Rationality Assumption from Law and Economics*, 88 CALIF. L. REV. 1051, 1075–81 (2000) (citing and discussing literature on this point).

events, like changes in health status or the death of family members.⁵⁹ For example, a young person who puts off expensive travel may be operating on the assumption that she will get the same amount of pleasure from traveling in her later years; if this turns out to be untrue, the delay will have made her worse off.⁶⁰ Significantly, this is not a question of willpower, even though the pattern may look hyperopic. Rather, it stems from the individual's inability to determine her optimal consumption plan under external constraints.

As the foregoing example suggests, the notion of a consumption plan that would maximize an individual's lifetime well-being within the bounds of external limits lurks in the background of willpower discussions. Explicitly developing this idea of an "optimal available consumption plan" (OACP) offers a useful starting point for thinking precisely about what willpower lapses cost.

2. Anatomy of an OACP

Willpower has the intriguing property of mediating between a person's own best laid plans and her ability to advance them. But sometimes those best laid plans do not, in fact, represent a path to higher lifetime well-being. If our interest is in the effect of willpower heterogeneity on well-being, we will want to know how much willpower lapses cost individuals in lost utility over the life cycle. This requires filtering out the costs that come from aiming at the wrong target and netting out the gains that come from failing, through lack of willpower, to advance wrong-headed goals. In other words, willpower lapses produce disutility only to the extent that they interfere with an individual's pursuit of her OACP. An individual's OACP can be roughly defined as the most preferred consumption plan that is available to her, given external constraints (such as budget and liquidity constraints and limits on risk reallocation). Individuals are also subject to the prevailing legal regime, which may withdraw certain desired choices and influence others through taxes, subsidies, or other mechanisms.⁶¹ Both the individual's OACP and the individual's actual consumption pattern must fit within these constraints.

The question of willpower enters into the picture only within the range of freedom that these external constraints leave open. The more limited that

59. See, e.g., Kelman, *supra* note 7, at 669–70. Research supports a "projection bias" that limits people's ability to know how they will feel under different conditions, including quite common states such as hunger. George Loewenstein et al., *Projection Bias in Predicting Future Utility*, 118 Q. J. ECON. 1209 (2003); see also Timothy D. Wilson & Daniel T. Gilbert, *Affective Forecasting*, 35 ADVANCES IN EXPERIMENTAL SOC. PSYCHOL. 345 (2003).

60. See Kelman, *supra* note 7, at 670 (using travel examples to illustrate how interest payments may or may not make up for the diminished enjoyment that may be associated with delayed consumption).

61. See Laibson, *supra* note 25, at 2 (distinguishing a person who cannot achieve optimal savings due to self-control problems from someone who rationally chooses the savings level that is optimal in light of a given inefficient tax environment).

compass, the less heterogeneity in willpower will matter.⁶² At the extreme, imagine a person who has no ability to borrow money and earns only enough each day to keep body and soul together. Such a person's actual consumption pattern will hew closely to her OACP regardless of her willpower level, because external constraints produce an OACP that is so tightly fitted to her survival needs that no other plausible pathway beckons. Likewise, loosening borrowing constraints will have different impacts on different individuals, depending on their willpower levels.⁶³ For some, it removes a binding constraint and makes possible a better approximation of the optimal lifetime-consumption plan; for others, it merely facilitates a wider divergence from that plan.⁶⁴ Similarly, people with front-loaded life-cycle earnings (such as child actors or professional athletes) have more to lose from willpower lapses than those who receive money later in time, holding all else equal.⁶⁵

A remaining question is what the term "optimal" means in the context of an OACP. To say that an optimal plan is one that is best by the individual's own lights gains us little ground if the individual has time-inconsistent preferences. We must make some judgment about which of the "selves" is to be viewed as authoritative on the question.⁶⁶ When short-run impulses threaten to derail long range planning, it might seem reasonable to grant priority to the long-run self.⁶⁷ But the fact that people make mistakes not only in the direction of overconsumption but also in the direction of underconsumption may cast doubt on the planner's authority. What is needed is a way to meaningfully aggregate the interests of the selves. Conceptualizing the OACP as the outcome of a hypotheti-

62. Thus, as we will see, one response to willpower heterogeneity might be to toughen external constraints, as through legal restrictions that remove certain consumption options. *See infra* sections II.C and III.D.

63. *See, e.g.,* M. Keith Chen & Alan Schwartz, *Intertemporal Choice and Legal Constraints*, 13 AM. L. & ECON. REV. (forthcoming 2011) (manuscript at 11, 31) (April 2011 draft on file with author).

64. *See* Laibson, *supra* note 35, at 465–67 (explaining how increased liquidity could actually be welfare reducing for consumers who would like to use illiquid assets, such as their homes, as commitment devices).

65. *See* Thaler & Shefrin, *supra* note 32, at 401 (observing that athletes' "declining income stream creates a difficult self-control problem in the high-income years").

66. *See, e.g.,* JOEL FEINBERG, HARM TO SELF, 3 THE MORAL LIMITS OF THE CRIMINAL LAW 83 (1986) (noting difficulty in determining which self's preferences should have priority when both "appear to be equally voluntary"); GLEN WHITMAN, CATO INSTITUTE, AGAINST THE NEW PATERNALISM: INTERNALITIES AND THE ECONOMICS OF SELF-CONTROL 1 (2006), <http://www.cato.org/pubs/pas/pa563.pdf> (contending that "internality theory in its current form unjustifiably 'takes sides' when it chooses to favor some personal interests over others"); Chrisoula Andreou, *Making a Clean Break: Addiction and Ulysses Contracts*, 22 BIOETHICS 25, 29–30 (2008) (analogizing granting priority to the choice preferred by most of the temporal selves to "mob rule"); Eric Rasmusen, Internalities and Paternalism: Applying the Compensation Criterion to Multiple Selves Across Time 15 (Oct. 6, 2008) (unpublished manuscript), available at <http://www.rasmusen.org/papers/internality-rasmusen.pdf> (observing that "what is special about Self 0 is that he is making a choice about something before it becomes a present decision"—a fact that generates an "uncomfortable" justification for privileging a prior precommitting self).

67. Much work on time-inconsistent preferences adopts this perspective, whether explicitly or implicitly. *See, e.g.,* Gruber & Köszegi, *supra* note 28, at 1287. For a critique, see WHITMAN, *supra* note 66.

cal bargaining session among an assembly of all temporal selves is one possibility.⁶⁸ We might say, for example, that one OACP trumps another if the selves who get their way under it win enough to compensate the selves who lose out.⁶⁹ The notion of an intraself bargaining session is admittedly artificial, and there are both practical and conceptual impediments to taking it literally.⁷⁰ Nonetheless, viewed as a thought experiment, it can help to illuminate the lifetime welfare-maximizing baseline that the OACP represents, against which we can assess the well-being costs of willpower failures.

It might seem more straightforward to use objective measures of well-being to assess the costs of willpower lapses.⁷¹ Yet presumably our reason for caring about willpower lapses as such (rather than merely as a subset of poor decisions that we might wish to regulate for other reasons) derives from the capacity of those lapses to undermine a person's own plans. Although an OACP is a construct that real-world individuals do not and could not have full access to, willpower is only interesting to the extent that people can at least roughly

68. If the selves could make the appropriate deals and side payments, the results would be Pareto efficient, leaving no selves worse off and at least one self better off. *See, e.g.*, O'Donoghue & Rabin, *supra* note 33, at 112–13 (discussing and critiquing the use of intraself Pareto efficiency to assess welfare); Bhattacharya & Lakdawalla, *supra* note 10, at 1–2 (describing conditions for a “Pareto self-improving policy”). *See also* WHITMAN, *supra* note 66 (applying Coasean analysis to internal bargaining).

69. This would amount to the application of the Kaldor-Hicks efficiency criterion to the intrapersonal realm. *See* Rasmusen, *supra* note 66, at 15–21 (developing and applying an “intraself Kaldor-Hicks criterion”); *see also* O'Donoghue & Rabin, *supra* note 33, at 113 (constructing a “long-run perspective” based on “a (fictitious) period 0 where the person has no decision to make and weights all future periods equally”).

70. A key conceptual difficulty with the hypothetical intraself bargaining model involves the question of what resources each “self” is assumed to enter the negotiation room holding, given the sequential manner in which resource-acquisition and resource-depletion decisions are actually made. In what currency can a later self promise to pay off an earlier self who threatens to engage in a binge of consumption that will leave the later self without funds? Likewise, if one self is deemed to start with all the resources, no Pareto-improving moves are possible, although the results would not maximize well-being over the life cycle. The selves might instead devote their bargaining session to developing an intrapersonal social welfare function for aggregating their interests. I thank Chris Sanchirico and Matthew Adler for discussions on these points.

More fundamentally, all of the selves cannot, in fact, get together to bargain because they are not all in existence at the same time. Instead, a rather different bargaining process (even if largely implicit) is likely to occur between an individual's present-focused self and her long-run (forward-looking) self who acts as a representative for all her future selves based on currently available information. *See, e.g.*, THOMAS C. SCHELLING, *CHOICE AND CONSEQUENCE* 94 (1984) (positing that absent future selves might have an “attorney” present); Lawrence Zelenak, *Tax Policy and Personal Identity over Time*, 62 *TAX L. REV.* 333, 368 n.164 (2009) (raising the possibility that a “planner” self might be “understood as a fiduciary for a future self (or selves)”; *see also* George Ainslie, *Procrastination: The Basic Impulse, in THE THIEF OF TIME: PHILOSOPHICAL ESSAYS ON PROCRASTINATION* 11, 20 (Chrisoula Andreou & Mark D. White eds., 2010) (“A long-range interest (principal) can be regarded as supervising successive motivational states of the person (agents) by means of personal rules.”); Elster, *supra* note 27, at 14–15 (distinguishing a concurrent divided self from a series of temporally sequential selves). This bargaining process can fail to result in OACP-compatible decisions for reasons owing to mistakes and missing information as well as to failures of will. *See supra* section I.A.

71. For a defense of an objective theory of well-being, see Daphna Lewinsohn-Zamir, *The Objectivity of Well-Being and the Objectives of Property Law*, 78 *N.Y.U. L. REV.* 1669 (2003).

identify the path that is best for them. If people are utterly misguided about what is best for them, then we are dealing not with a problem of self-control but rather with an entirely different set of issues that willpower-related policies cannot address.

3. Willpower Heterogeneity and Lifetime Well-Being

The life-cycle hypothesis makes strong implicit assumptions about the degree of cooperation and resource sharing that occurs among a person's various temporal selves.⁷² These assumptions break down for many reasons, as we have seen. In comparing the well-being of two people over their lifetimes,⁷³ we must examine not only their lifetime earnings but also how well they can leverage those earnings into utility. This depends in part on their ability to arrange consumption optimally within the life cycle,⁷⁴ which, among other things, depends on willpower.

It is well understood that people with identical lifetime earnings but different earning patterns may have different consumption patterns and hence different

72. See Zelenak, *supra* note 70, at 348–51 (noting and critiquing assumptions underlying a lifetime approach to taxation). The resource-sharing issue is one part of a larger philosophical inquiry into the degree to which an individual remains relevantly “the same person” over the course of a lifetime. See, e.g., DEREK PARFIT, *REASONS AND PERSONS* (1984); Shane Frederick, *Time Preference and Personal Identity*, in *TIME AND DECISION*, *supra* note 18, at 89; David Shoemaker, *Personal Identity and Ethics*, *STANFORD ENCYCLOPEDIA OF PHIL.*, <http://plato.stanford.edu/entries/identity-ethics> (last revised Mar. 5, 2008). For a discussion of the implications of identity over time for tax policy, see generally Zelenak, *supra* note 70. See also Adler, *supra* note 6, at 50–53 (describing and endorsing a lifetime methodology for tax modeling).

73. There is an antecedent question of whether the lifetime is the right unit of analysis for evaluating and comparing well-being. See MATTHEW D. ADLER, *WELL-BEING AND FAIR DISTRIBUTION: BEYOND COST-BENEFIT ANALYSIS* (forthcoming 2011) (manuscript at ch. 6) (on file with author); Adler, *supra* note 6; see also PARFIT, *supra* note 72, at 343–44 (quoting and discussing THOMAS NAGEL, *MORTAL QUESTIONS* 124–25 & n.16 (1979) (examining the significance for distributive justice of personal identity over time)); Zelenak, *supra* note 70, at 342–33 (discussing Parfit's view of how matters of identity affect the analysis of distributive questions).

74. Here it becomes relevant that well-being in different periods is not additively separable, meaning that we cannot simply add up each year's utility in isolation and examine the total. See DEATON, *supra* note 47, at 15–17 (discussing the assumption of additive separability that is sometimes used in formal treatments and its shortcomings, as well as some ways that economists have built nonadditivity into models); Adler, *supra* note 6, at 13–14. Preferences for improvement over time and adaptive effects make utility sequences and patterns highly relevant to lifetime utility. See, e.g., DEATON, *supra* note 47, at 16 (explaining that “[a]dditivity rules out phenomena such as habit formation”); Adler, *supra* note 6, at 13 (observing that, among other things, “[a]dditive separability rules out the possibility . . . of an improvement effect—namely that a life where facts with respect to some aspect of well-being get better over time is better just by virtue of this improvement”). A large body of empirical work establishes that improving sequences are generally preferred over flat or declining ones. See, e.g., Dan Ariely & Ziv Carmon, *Summary Assessment of Experiences: The Whole Is Different from the Sum of Its Parts*, in *TIME AND DECISION*, *supra* note 18, at 323, 327 (observing that “one of the most robust findings in research about assessment of experiences is the clear preference for improvement over time” and collecting citations to studies establishing this preference); Frederick et al., *supra* note 22, at 28–29 (reviewing literature); George Loewenstein & Dražen Prelec, *Preferences for Sequences of Outcomes*, 100 *PSYCHOL. REV.* 91 (1993).

lifetime utility levels.⁷⁵ What this paper hopes to emphasize is the following additional point: two people with identical lifetime earnings and identical earning patterns (as well as identical external constraints on borrowing and insuring,⁷⁶ and identical computational and predictive capacities) could nonetheless experience very different levels of lifetime well-being owing to willpower-related differences in their ability to allocate consumption within the life cycle. It is these differences that I will explore here.

C. THE COSTS OF WILLPOWER LAPSES

Willpower lapses carry obvious costs when they cause people's consumption patterns to diverge from their OACPs. But we must also take into account the costs incurred (whether successfully or not) to prevent failures of will from happening.⁷⁷ Some recent scholarship helpfully explores the problem in terms of intrapersonal transaction costs that prevent temporal selves from frictionlessly working out their differences.⁷⁸ As in the interpersonal case, intrapersonal transaction costs generate two potential problems. First is a concern that the conflict will never reach an efficient resolution—the higher valuing user will not get the entitlement.⁷⁹ Just as a factory might be forced to shut down when it would be efficient for it to continue operating or allowed to continue when it would be efficient for it to shut down, an individual might, for example, smoke when it is not efficient for her to do so (in terms of fulfilling her own lifetime preferences), or she might fail to smoke when it would be efficient for her to do so (if the pleasure from smoking actually outweighs the long-term risks).⁸⁰

A second concern relates to the resources that are wasted in the course of transacting.⁸¹ Just as wrangling among neighbors over a factory's operation consumes resources, so too does wrangling among selves. Even if the entitle-

75. See, e.g., Adler, *supra* note 6, at 52. The point is easiest to see if we imagine that income tends to be temporally "sticky," in the sense that it is consumed within (or relatively near) the period in which it is earned rather than being equally available throughout the life cycle.

76. I refer here to initial limits on borrowing and insuring given income and earning patterns. Low-willpower people might experience a constriction (or, in some contexts, an expansion) of credit based on their observed patterns of spending and repaying. Similarly, insurance costs might go up if, for example, lack of willpower translates into impulsive risk-seeking behavior that insurers can observe.

77. Cf. GUIDO CALABRESI, *THE COSTS OF ACCIDENTS: A LEGAL AND ECONOMIC ANALYSIS* (1970). Calabresi emphasized that the costs of accident prevention and administrative costs, as well as the harms caused by the accidents themselves, must be taken into account. *Id.* at 26–31. I will not address administrative costs explicitly here, but the policy alternatives discussed in Parts III and IV, as well as private or self-administered approaches to willpower, should be assessed in light of this consideration.

78. See, e.g., WHITMAN, *supra* note 66, at 8–10 (discussing the potential for, and impediments to, bargaining between present and future selves); see also AINSLIE, *supra* note 35, at 105–16 (discussing intrapersonal bargaining); Rasmussen, *supra* note 66 (analyzing potential intraself bargains).

79. Guido Calabresi & A. Douglas Melamed, *Property Rules, Liability Rules, and Inalienability: One View of the Cathedral*, 85 HARV. L. REV. 1089, 1119 (1972).

80. See WHITMAN, *supra* note 66, at 6 (developing this analogy).

81. See, e.g., RICHARD A. EPSTEIN, *CASES AND MATERIALS ON TORTS* 706–07 (9th ed. 2008) (discussing, in the context of injunctive relief, both the risk of failing to reach an agreement and the waste of resources associated with the bargaining process itself).

ment does ultimately reach the higher valuing user, resources will be dissipated in the transfer process.⁸² These two categories of costs, which I will call “failure costs” and “exercise costs,” respectively, are examined in the following sections—along with a third category, “erosion costs,” which relates to the effects over time of patterns of willpower exertions and failures.⁸³

1. Failure Costs

Willpower failures are both ubiquitous and varied. In some cases, these failures may impose no costs, or may actually confer benefits, if other errors have caused people to aim their willpower efforts at the wrong target.⁸⁴ In general, however, we think that willpower lapses move people away from their OACPs, typically by causing them to consume earlier than they—in their composite deliberative states—would prefer. People who are aware of their own propensity to consume too early may adopt personal financial rules or other precommitment mechanisms.⁸⁵ These approaches may enable them to attain better results than through unstructured consumption but may still fall short of the optimal plan (whether by undershooting, overshooting, or doing some of both).⁸⁶ For these reasons and others, people may actually consume later than they would prefer or ultimately consume less on a lifetime basis than they would prefer.⁸⁷

Other willpower shortfalls involve choices among goods or activities. For example, willpower is often exerted in certain domains (such as food, tobacco, alcohol, and exercise) not simply to rearrange a fixed quantum of consumption within the life cycle but rather to change the total amounts and mixes of the goods that are consumed. Thus, willpower failures may cause people to consume things they would prefer not to consume at all (such as cigarettes or mindless television shows), or fail to consume at all things that they would like

82. *See id.*

83. I introduced this taxonomy in prior work. *See* Fennell, *supra* note 13, at 99–101. Although I have not seen this precise breakdown elsewhere, the underlying ideas are not new; all three types of costs are well-recognized in the literature. *See infra* sections I.C.1, I.C.2 & I.C.3 (citing and discussing scholarship addressing each of these three types of costs).

84. This is one of several ways in which cognitive errors might offset each other. *See generally* Besharov, *supra* note 15 (describing interactions among cognitive biases and their effects on attempts at correction). In other instances, willpower lapses may confer social benefits, as where a would-be criminal procrastinates in undertaking steps towards committing an offense. *See* Manuel A. Utset, *Procrastination and the Law*, in *THE THIEF OF TIME: PHILOSOPHICAL ESSAYS ON PROCRASTINATION*, *supra* note 70, at 253, 263–65 (discussing “time-inconsistent obedience” in the context of crime commission).

85. For analysis of the role potentially played by personal rules, *see*, for example, GEORGE AINSLIE, *PICOECONOMICS: THE STRATEGIC INTERACTION OF SUCCESSIVE MOTIVATIONAL STATES WITHIN THE PERSON* 142–73 (1992); Roland Bénabou & Jean Tirole, *Willpower and Personal Rules*, 112 J. POL. ECON. 848 (2004); Thaler & Shefrin, *supra* note 32, at 397–98.

86. *See, e.g.*, AINSLIE, *supra* note 35, at 143–60 (examining implications of breaking and following personal rules); Bénabou & Tirole, *supra* note 85, at 850 (explaining that personal rules create risks of both underregulation and overregulation).

87. *See, e.g.*, RICHARD H. THALER, *THE WINNER’S CURSE: PARADOXES AND ANOMALIES OF ECONOMIC LIFE* 118 (1992) (noting lower-than-expected rates of dissaving among the elderly).

to consume (such as a vacation to Alaska or a college education). People may also, over a lifetime or some subset of it, consume more or less of certain things (such as certain kinds of books or particular types of foods) than they would prefer.⁸⁸

Failure costs can also expand beyond the direct personal fallout of a given lapse. For one thing, willpower failures may have implications for the individual's ability to resist future temptations, as will be discussed below.⁸⁹ But the costs of willpower failures may also extend beyond the individual by affecting other people. This could occur through any number of channels. Some activities, like smoking, have direct spillovers on others (secondhand smoke). Other activities may affect other individuals through avenues like health insurance premiums, depending on the pooling and pricing rules in place.⁹⁰ Another intriguing possibility raised by recent empirical work is that certain effects, such as obesity, could spread through social networks.⁹¹ While externalities can form an entirely separate justification for regulating conduct,⁹² willpower lapses can contribute to the problem of external costs by causing people to make decisions that are not even personally optimal.⁹³

2. Exercise Costs

Although much remains to be learned about the operation of willpower, a large and growing body of empirical research finds that it costs something in cognitive terms to exercise self-control.⁹⁴ In one study, for example, hungry participants who had to resist a plate of freshly baked chocolate chip cookies

88. Consumption choices can dramatically affect the lifetime budget line, as where choices are made early in life between working and loafing or between spending and saving. Thus, divergences from an initial OACP that are produced by willpower lapses may produce a more constrained OACP over time. Conversely, willpower skills developed early in life that alter consumption choices at young ages can expand the OACP over time. This point relates to larger questions about early and late investments in skill formation. See generally Flavio Cunha & James J. Heckman, *Investing in Our Young People* (Nat'l Bureau of Econ. Research, Working Paper No.16201, 2010), available at <http://www.nber.org/papers/w16201>.

89. See *infra* text accompanying notes 100–09 (discussing the impact of past willpower failures on the likelihood of future failures).

90. See, e.g., Jay Bhattacharya & Neeraj Sood, *Health Insurance and the Obesity Externality*, in 17 *THE ECONOMICS OF OBESITY: ADVANCES IN HEALTH ECONOMICS AND HEALTH SERVICES RESEARCH* 279 (Kristian Bolin & John Cawley eds., 2007).

91. See Nicholas A. Christakis & James H. Fowler, *The Spread of Obesity in a Large Social Network over 32 Years*, 357 *NEW ENG. J. MED.* 370 (2007). But see Ethan Cohen-Cole & Jason M. Fletcher, *Is Obesity Contagious? Social Networks v. Environmental Factors in the Obesity Epidemic*, 27 *J. HEALTH ECON.* 1382 (2008) (challenging the social-networks explanation).

92. See generally Russell Korobkin, *Libertarian Welfarism*, 97 *CALIF. L. REV.* 1651 (2009).

93. As a result, measures that reduce willpower lapses can have the fortunate side effect of reducing externalities; by the same token, some externality-control measures can help people to achieve greater individual well-being. See, e.g., Mark Dodd, *Obesity and Time-Inconsistent Preferences*, 2 *OBESITY RES. CLINICAL PRAC.* 83, 87 (2008).

94. This appears to be true in a basic physiological sense. Recent work has linked the exercise of willpower to the brain's use of glucose. See Matthew T. Gailliot et al., *Self-Control Relies on Glucose as a Limited Energy Source: Willpower Is More Than a Metaphor*, 92 *J. PERSONALITY & SOC. PSYCHOL.*

immediately before attempting a set of (unsolvable) puzzles gave up more quickly on the puzzles than those permitted to eat the cookies and those in a control condition involving no food at all.⁹⁵ From this and similar studies, researchers have concluded that, in the short run at least,⁹⁶ willpower works like a muscle that can become fatigued with use.⁹⁷ More broadly, self-control seems to share a common, depletable fund with other cognitive tasks, such as decision making.⁹⁸ Although the empirical work in this area leaves a number of important questions unanswered,⁹⁹ and ongoing work suggests some qualifications,¹⁰⁰ the notion that willpower exertions are taxing seems quite robust.¹⁰¹

If the stock of willpower is limited in the relatively short run, people may maximize overall intertemporal success by giving in to relatively innocuous temptations.¹⁰² Thus, we may see in some willpower lapses the analogue of

325 (2007); Matthew T. Gailliot & Roy F. Baumeister, *The Physiology of Willpower: Linking Blood Glucose to Self-Control*, 11 PERSONALITY & SOC. PSYCHOL. REV. 303 (2007).

95. Roy F. Baumeister et al., *Ego Depletion: Is the Active Self a Limited Resource?* 74 J. PERSONALITY & SOC. PSYCHOL. 1252, 1255 (1998). The subjects who had to resist the cookies were instructed to eat radishes instead, ostensibly as part of a study of taste. Other subjects were instructed to eat the cookies (or, alternatively, some chocolate candies) rather than the radishes. In both cases, the subjects were left alone with both kinds of food, so that those told to eat radishes could have sneaked some cookies instead. Interestingly, none did so—although some “radish condition” subjects went so far as to pick up and sniff the cookies. *Id.*

96. The long run story seems to be rather different. See *infra* note 114 and accompanying text.

97. See, e.g., Baumeister et al., *supra* note 95, at 1255–56; Hagger et al., *supra* note 2 (providing a meta-analysis of studies). Other studies involved initial tasks like suppressing a particular thought (such as of a “white bear”) or particular emotions (in reaction to sad and comic movies). See Mark Muraven et al., *Self-Control as Limited Resource: Regulatory Depletion Patterns*, 74 J. PERSONALITY & SOC. PSYCHOL. 774 (1998). In each case, these acts worsened subsequent performance on a cognitive or endurance task. *Id.*; see also Baumeister & Vohs, *supra* note 30 (discussing studies on self-regulation).

98. See, e.g., Baumeister et al., *supra* note 95; Kathleen D. Vohs et al., *Making Choices Impairs Subsequent Self-Control: A Limited-Resource Account of Decision Making, Self-Regulation and Active Initiative*, 94 J. PERSONALITY & SOC. PSYCHOL. 883 (2008); see also Baba Shiv & Alexander Fedorikhin, *Heart and Mind in Conflict: The Interplay of Affect and Cognition in Consumer Decision Making*, 26 J. CONSUM. RES. 278, 282–86 (1999) (finding, in a study involving undergraduate students, a greater tendency to choose unhealthy snacks following difficult cognitive exertions).

99. See, e.g., Hagger et al., *supra* note 2 (examining alternative explanations, moderating factors, and possible extensions of the depletion model); Eric J. Johnson, *Man, My Brain Is Tired: Linking Depletion and Cognitive Effort in Choice*, 18 J. CONSUMER PSYCHOL. 14 (2008) (providing a concise overview of some of the literature’s unanswered questions and ongoing debates).

100. For example, Siegfried Dewitte, Sabrina Bruyneel, and Kelly Geyskens found that self-control enhancement rather than depletion occurred when two tasks drawing on the same control processes followed each other in succession. See Siegfried Dewitte et al., *Self-Regulating Enhances Self-Regulation in Subsequent Consumer Decisions Involving Similar Response Conflicts*, 36 J. CONSUMER RES. 394 (2009).

101. See Emre Ozdenoren et al., *Willpower and the Optimal Control of Visceral Urges* 1–3 (Resources for the Future Discussion, Working Paper No. 10-35, 2010), available at <http://ssrn.com/abstract=1635350> (discussing prior literature and modeling willpower as a depletable resource that can be drawn down by prior willpower exercises).

102. See Hagger et al., *supra* note 2, at 518 (discussing “conservation” of self-control reserves); Loewenstein, *supra* note 31, at 61 (characterizing willpower as “a constrained resource” the efficient use of which requires that it “be allocated selectively between alternative uses”); Ozdenoren et al., *supra* note 101 (modeling this allocation process).

“rational ignorance” in the realms of decision making and information gathering.¹⁰³ If successfully applying willpower simply costs too much in a given setting, whether because it reduces willpower in other domains or generally depletes mental and emotional resources that would otherwise be used to advance important personal or career goals, it might seem that people should “choose their battles” and exhibit occasional willpower lapses.¹⁰⁴ However, the costs associated with exercising self-control on a given occasion represent only part of the story. Patterns of exertions over time can influence the costliness of later exertions, and a willpower success or failure in one instance may carry implications for the odds of succeeding or failing in later instances.

Other approaches to reducing exercise costs also carry risks. Consider the use of personal rules.¹⁰⁵ What makes these rules effective is their ability to raise the stakes for any given lapse by bundling together a group of similar decisions.¹⁰⁶ But, as a result, a lapse may set a precedent and lead to further lapses.¹⁰⁷ Dieters, for example, may conclude after giving in to a piece of cake that “the diet is ‘blown’” (at least for the day) and that there is no additional harm to eating as much as they like.¹⁰⁸ Thus, lapses that seem cost justified on a given occasion may be dangerous, unless they can be psychologically firewalled off from later, similar occasions for which willpower will be needed.¹⁰⁹ People can

103. See, e.g., HAROLD DEMSETZ, *Protecting You from Yourself*, in FROM ECONOMIC MAN TO ECONOMIC SYSTEM: ESSAYS ON HUMAN BEHAVIOR AND THE INSTITUTIONS OF CAPITALISM 21, 21 (2008) (“Perfection in decision making is infinitely costly and consuming of time, so we are wise to accept a positive probability of error and even wiser to tolerate higher probabilities if the cost of reducing error is greater.”); George J. Stigler, *The Economics of Information*, 69 J. POL. ECON. 213, 224 (1961) (“Ignorance is like subzero weather: by a sufficient expenditure its effects upon people can be kept within tolerable or even comfortable bounds, but it would be wholly uneconomic entirely to eliminate all its effects.”).

104. Loewenstein and O’Donoghue apply a “choosing-your-battles” approach to reduce another category of costs—those that come from self-imposed, nonpecuniary penalties, such as fear and guilt, applied to willpower lapses. George Loewenstein & Ted O’Donoghue, “We Can Do This the Easy Way or the Hard Way”: Negative Emotions, Self-Regulation, and the Law, 73 U. CHI. L. REV. 183, 186–87, 204 fig.2 (2006); *id.* at 192–93, 206 fig.4 (explaining and illustrating how “guilt-free zones” could assist in reducing certain costs associated with attempting to resist temptations that ultimately prove irresistible). Perhaps for these reasons, some exercise regimens and diets expressly contemplate “cheat days.” I thank Leandra Lederman for this example.

105. See, e.g., AINSLIE, *supra* note 35, at 112–13.

106. See, e.g., *id.*; AINSLIE, *supra* note 85, at 142–73; Bénabou & Tirole, *supra* note 85.

107. See, e.g., George Ainslie, *Beyond Microeconomics: Conflict Among Interests in a Multiple Self as a Determinant of Value*, in THE MULTIPLE SELF, *supra* note 27, at 133, 147; Roland Bénabou & Jean Tirole, *Self-Knowledge and Self-Regulation: An Economic Approach*, in 1 THE PSYCHOLOGY OF ECONOMIC DECISIONS: RATIONALITY AND WELL-BEING 137, 151–59 (Isabelle Brocas & Juan D. Carrillo eds., 2003); Bénabou & Tirole, *supra* note 85, at 851–56.

108. C. Peter Herman & Janet Polivy, *Dieting as an Exercise in Behavioral Economics*, in TIME AND DECISION, *supra* note 18, at 459, 466–71.

109. See, e.g., Ainslie, *supra* note 107, at 148–49. An interesting question prompted by this line of reasoning is whether tax policy could itself structure opportunities for “controlled lapses.” Cf. Fennell, *supra* note 17, at 151–52 (discussing the possibility that tax refunds offer such a bounded exception); Loewenstein & O’Donoghue, *supra* note 104, at 192–93, 206 fig.4 (discussing and depicting the effects of “guilt-free zones”).

also try to reduce exercise costs by simply making tempting choices unavailable.¹¹⁰ This strategy, too, could backfire, if willpower levels are mutable over time and people have less than total control over the temptations that come their way. The next section explains.

3. Erosion Costs

Exercise costs (and, by extension, failure costs) may change over time as a result of patterns of exertions. Muscles not only become tired but can also get stronger with regular use; these same characteristics appear to apply to willpower.¹¹¹ If exerting willpower makes one better at it, then efforts to avoid temptations altogether may prove counterproductive. A related possibility is that willpower can be developed by employing particular techniques. For example, studies involving children and delayed gratification suggest that people can be taught skills that enhance their ability to wait, such as pretending they are looking at a picture of a treat rather than the actual treat, or distracting themselves from the temptation.¹¹²

The idea that willpower can be built up, or, alternatively, that it can atrophy or erode, has received attention in the literature.¹¹³ Experimental work by Mark Muraven, Roy Baumeister, and Dianne Tice found evidence of a willpower strength-training effect among participants who were assigned to practice certain self-control tasks, such as maintaining good posture, over a two week period in between two experimental sessions.¹¹⁴ If failing to exercise willpower erodes the stock of self-control that can be accessed on future occasions, then the long-run strategy for minimizing failure costs and exercise costs may involve incurring more of both than could be justified based on a short-run

110. For the potential gains that might come from reducing one's choice set, see, for example, Faruk Gul & Wolfgang Pesendorfer, *Temptation and Self-Control*, 69 *ECONOMETRICA* 1403 (2001).

111. See, e.g., Loewenstein, *supra* note 31, at 56–57; Ozdenoren et al., *supra* note 101, at 20–22; see also Dewitte et al., *supra* note 100, at 396, 403 (questioning the muscle metaphor's assumption that self-control resources cannot be enhanced in the short run and suggesting that task similarity can produce short-run enhancements rather than depletions).

112. For an overview of this literature, see Walter Mischel et al., *Sustaining Delay of Gratification over Time: A Hot/Cool Systems Perspective*, in *TIME AND DECISION*, *supra* note 18, at 175, 183–87.

113. See, e.g., Jonathan Klick & Gregory Mitchell, *Government Regulation of Irrationality: Moral and Cognitive Hazards*, 90 *MINN. L. REV.* 1620, 1626–27 (2006) (suggesting that paternalistic policies present a variety of “cognitive hazards” and could “undercut personal incentives to invest in cognitive capital”); Bailey Kuklin, *Self-Paternalism in the Marketplace*, 60 *U. CIN. L. REV.* 649, 667 (1992) (raising and countering the argument that precommitment would “undermine self-discipline and thwart the goals of moral strength and virtue”); *id.* at 666 & n.36 (discussing the related argument that placing alternatives out of reach will deprive consumers of learning opportunities and the related strengthening of “moral fiber” and connecting this point to Mills’s “‘moral muscles argument’ [against] paternalism”).

114. See Mark Muraven et al., *Longitudinal Improvement of Self-Regulation Through Practice: Building Self-Control Strength Through Repeated Exercise*, 139 *J. SOC. PSYCHOL.* 446 (1999). The study found that participants who had exercised certain forms of self-control were less vulnerable to depletion effects. The authors concluded that “[i]t is good to exert self-control on a regular basis because in the long run, these exercises will strengthen self-control and make a person less susceptible to the depleting effects of a single exertion.” *Id.* at 456; see also Hagger et al., *supra* note 2, at 518 (discussing and citing additional literature on self-control “training” effects).

evaluation.¹¹⁵

Additional empirical work might be directed not only at investigating the longer term effects of exercising willpower but also the broader cultural spread of willpower norms. For example, although different age cohorts exhibit different savings behaviors and monetary attitudes,¹¹⁶ we know little about the intergenerational or societal transmission of willpower.

D. UNDERSTANDING WILLPOWER HETEROGENEITY

Although intertemporal struggles are universal, willpower problems do not affect everyone to the same degree. This is due in part to circumstances unrelated to willpower itself, such as opportunities for temptation, but individuals also differ in how they respond to the same circumstances. Put in the terms introduced above, people with self-control problems operate in an intrapersonal environment marked by high transaction costs, while people with high levels of willpower operate in an intrapersonal transaction cost environment that more closely approximates the Coasean ideal.¹¹⁷ When willpower lapses occur, we might posit some sort of communication breakdown between the “controller” self and the acting self.¹¹⁸ The controller self cannot broker a deal between the current self and various future selves because the acting self has become unreachable or unamenable to bargaining, perhaps as a result of strong visceral influences.¹¹⁹ While such communication breakdowns may happen occasionally to everyone, we might regard those for whom they are especially pronounced and frequent as having low willpower levels.

Alternatively, we might say that people have low willpower when their exercise costs are unusually high relative to the efficacy of those exertions in reducing failure costs. Although everyone may suffer spikes in exercise costs from time to time, people with low willpower levels may have chronically elevated exercise costs due to some kind of vulnerability or past erosion of willpower, or they may simply lack skills that would lower those exercise costs

115. Some critics of interventions premised on cognitive shortfalls, including self-control, have emphasized the possibility that these efforts would have unintended effects on learning or internal controls. See, e.g., Klick & Mitchell, *supra* note 113, at 1631–32; Whitman & Rizzo, *supra* note 39, at 430–33; see also Bénabou & Tirole, *supra* note 107, at 155–56 (noting possibility that self-control might not develop as well under “tight external constraints”).

116. For analyses of generational differences in views about money, see, for example, PETER K. LUNT & SONIA M. LIVINGSTONE, *MASS CONSUMPTION AND PERSONAL IDENTITY* 101–32 (1992); Teresa R. Daniel, *Delay of Consumption and Saving Behavior: Some Preliminary, Empirical Outcomes*, in *ADVANCES IN ECONOMIC PSYCHOLOGY* 171, 180 (Gerrit Antonides et al. eds., 1997).

117. See sources cited *supra* note 78. This binary classification is a simplification; people obviously occupy a continuum with respect to willpower and also exhibit variation within their own lives.

118. See Elster, *supra* note 27, at 6 (positing some “breakdown of internal communication”).

119. See generally George Loewenstein, *Out of Control: Visceral Influences on Behavior*, 65 *ORGANIZATIONAL BEHAV. & HUM. DECISION PROCESSES* 272 (1996). The idea that future selves are represented in willpower struggles, albeit imperfectly, is an implication of the two-self model that is often used to model self-control problems. See *supra* text accompanying notes 32–33.

systematically, such as the use of distraction techniques or personal rules.¹²⁰

II. THREE APPROACHES TO WILLPOWER

How might tax policy best respond to willpower heterogeneity? I will start by setting aside practical difficulties in observing willpower levels and consider the question at the level of theory. Three divergent responses come to mind. First, we might funnel resources to low-willpower types to compensate them for their lower utility levels. Second, we might attempt to turn low-willpower types into high-willpower types by using penalties or subsidies to reprice gaps between their actual consumption patterns and their optimal available consumption plans (OACPs).¹²¹ Third, we might try to directly deliver consumption outcomes to the low-willpower crowd that more closely approximate those of the high-willpower group by blocking or forcing certain consumption choices. These strategies—compensation, repricing, and choice reduction—do not exhaust the policy choice set, but they do offer useful starting points. Elements of each can be seen in existing and proposed tax policies, as I will discuss in Part III.

A. COMPENSATING FOR LOW WILLPOWER

An equity-based rationale for reducing tax burdens on low-willpower individuals can be approached from either of two directions.¹²² First, willpower might be considered an element of ability,¹²³ which is generally taken to be the proper theoretical target of taxation.¹²⁴ Individuals may substitute self-control for the exercise of other abilities in the paid labor market; both willpower and work can

120. See *supra* text accompanying notes 105–12.

121. For a discussion of the OACP and its role in willpower analysis, see *supra* section I.B.2.

122. An efficiency-based rationale might also apply if it turns out that low-willpower people have more elastic labor supply than others. Cf. Michael Kremer, Should Taxes Be Independent of Age? 14–15 (Sept. 2001) (unpublished manuscript), available at http://www.economics.harvard.edu/faculty/kremer/files/TAXESAGE_9_2001A_Clean.pdf (discussing an analogous elasticity-based efficiency rationale for basing taxes on age).

123. A distinct argument would be that willpower signals something about ability. The related idea that savings might serve as an “indicator good” has been explored. See Bankman and Weisbach, *Superiority*, *supra* note 3, at 1453–55; Emmanuel Saez, *The Desirability of Commodity Taxation Under Non-Linear Income Taxation and Heterogeneous Tastes*, 83 J. PUB. ECON. 217, 227–28 (2002); see also Chris William Sanchirico, *Tax Eclecticism*, 64 TAX L. REV. (forthcoming 2011), draft available at <http://ssrn.com/abstract=1491130> (discussing how observable taxable attributes can convey information relevant to social welfare). Using a particular trait as an indicator makes sense only when it is more readily observable than the real variable of interest; if the presence or absence of willpower can only be inferred from looking at yet another set of behaviors, it does not hold much promise as an indicator good in its own right.

124. For discussion of this point, see, for example, Lawrence Zelenak, *Taxing Endowment*, 55 DUKE L.J. 1145 (2006), and Shaviro, *supra* note 3, at 752 (explaining that according to the optimal income tax literature, “the attribute of interest is . . . ability, whether or not exercised” but noting that this is still “a turtle shy” of the ultimate focus of tax policy—the “effect on social welfare”). For an interesting analysis of how personal attributes other than ability relate to tax progressivity, see Jeff Strnad, *The Progressivity Puzzle: The Key Role of Personal Attributes* (Stanford Law Sch. John M. Olin Program in Law & Econ., Working Paper No. 293, 2004), available at <http://ssrn.com/abstract=10289> (examining the implications of “materialism” and “work affinity” for the tax rate structure).

enable people to advance their own well-being, and both may make similar draws on a limited stock of cognitive resources. On this account, exertions of willpower are a form of nonmarket production, akin to untaxed production that occurs within the home.¹²⁵

Second, willpower levels may work as amplifiers or dampeners in converting marketable talents and skills into well-being over the life cycle. Holding income constant,¹²⁶ low-willpower people are less able to achieve the consumption plan that they deem best and are consequently less well off than their high-willpower counterparts. If tax policy's distributive goals are benchmarked to lifetime well-being, then those goals cannot be achieved without somehow accounting for differences in willpower.¹²⁷ But it is not obvious which way this heterogeneity would cut. As Daniel Shaviro has observed, the fact that myopia keeps some individuals from acting as good consumers in translating income into utility could support either redistribution toward the myopes or, alternatively, shifting money away from the myopes and toward those who are better able to generate utility with the same resources.¹²⁸ Where one comes out on this issue depends both on empirical assessments about marginal utility and on the social welfare function in use.¹²⁹

Either of these approaches might point in the direction of a tax policy that compensates for low willpower. Moral hazard presents a principal counterargument. Because compensating people for low willpower levels reduces the cost associated with being a low-willpower type, we might expect to see more

125. On the distributive effects of untaxed household production, see Chris William Sanchirico, *Progressivity and Potential Income: Measuring the Effect of Changing Work Patterns on Income Tax Progressivity*, 108 COLUM. L. REV. 1551 (2008).

126. The possibility that willpower may itself correlate with income or wealth levels is discussed below. See *infra* notes 185–89 and accompanying text.

127. Indeed, the capacity to wring more lifetime welfare out of a given income stream would seem to be just as relevant to tax policy's distributive goals as the talents and skills that produce the income stream in the first place. Yet, tax policy does not ordinarily respond to heterogeneity in one's skill as a consumer. See Shaviro, *supra* note 3, at 758; see also Warren, *supra* note 7, at 1096–97 (rejecting realized utility as an appropriate tax base).

128. Shaviro, *supra* note 3, at 785. As Shaviro explains, myopic individuals are likely to have lower total utility than “abler consumers,” which might support redistribution in their favor on egalitarian principles. *Id.* Other things being equal, however, we would expect a nonmyopic person to derive more marginal utility from a dollar because she would do a better job of timing her consumption so as to maximize utility. See *id.* But the story becomes less clear if the marginal utility of money varies depending on total utility levels. See *id.* Moreover, myopic individuals may suffer from severe liquidity crunches as a result of their own ill-timed consumption choices; this might cause a well-timed infusion of cash to generate a great deal of marginal utility for them, even if dollars dropped at random into their life cycles would not.

129. See, e.g., *id.* A utilitarian social welfare function would focus on marginal utility alone, in an effort to wring the largest amount of utility out of each dollar. See, e.g., Weisbach, *supra* note 55 at 73. In contrast, if society's distributive goals involve providing at least a threshold amount of well-being for each individual, people who are less skilled at translating money into utility will need more resources to reach that threshold and thus might receive transfers whether their marginal utility is higher or lower than that of other people. See *id.* (exploring this point in the context of people with disabilities).

people of this type emerge over time. The size of the response depends in part on the respective roles of effort and endowment in producing willpower. If, as suggested above, the exercise of willpower always requires at least some effort, then people might be expected to shift their limited energies to other endeavors if self-control no longer produces large marginal gains. A wrinkle here is that exertions of effort that take place in the labor market are already taxed, so it is possible that we already have inefficiently large expenditures of effort on untaxed factors like willpower.¹³⁰ Although the issues are complex, a concern remains that compensation for low willpower levels would only serve to exacerbate the condition that led to compensation in the first place.¹³¹

In some respects, the design challenges resemble those in other settings where social arrangements can influence the "exchange rate" at which money is translated into utility. In the disability context, for example, changing certain features of the social environment (such as the pervasive use of stairs) could change the amount of marginal utility that a person with a disability gets out of the marginal dollar.¹³² Similarly, restructuring societal arrangements to make things easier on those with low willpower could change the degree to which earned income translates into utility for those individuals. Such arrangements might include the in-kind distribution of tools (such as precommitment devices) for better leveraging of utility or a greater degree of intrapersonal redistribution from the low-willpower person's low-marginal-utility states to her high-marginal-utility states.¹³³

In a different vein, John Roemer suggests an interesting way to dodge moral-hazard concerns while pursuing equality of opportunity: basing distributive outcomes not on an individual's absolute level of effort, but rather on how her effort ranks within the effort distribution for her relevant comparison group.¹³⁴ Thus, if Person A and Person B are members of two different groups

130. Yet another consideration is that low willpower can manifest itself not only in choices between consumption and savings but also in choices between leisure and labor. To the extent that low-willpower people work less than high-willpower people, the existing tax system already offers them a break. Yet even if myopic low-willpower people are more ready to substitute leisure for labor, other things equal, they might also find themselves more frequently in binds (assuming imperfect liquidity) requiring work just for survival. It is even possible that they would strategically engineer such binds to force themselves to work. See Peter Diamond & Botond Köszegi, *Quasi-Hyperbolic Discounting and Retirement*, 87 J. PUB. ECON. 1839, 1841, 1859 (2003) (discussing such "strategic undersaving"). People with low willpower might also respond to their known propensities by locking themselves into jobs that do not offer much flexibility. Finally, some low-willpower people are hyperopic and would presumably be less ready to substitute leisure for labor.

131. Cf. Bankman & Weisbach, *Consumption*, *supra* note 3, at 800-01 (making this point about low savings levels, which might be indicative of myopia).

132. See Weisbach, *supra* note 55, at 65-66, 98 (discussing the social model of disability and the stairs example, as well as the possibility that the latter may have public-goods characteristics).

133. For a low-willpower person, the marginal utility derived from a given dollar depends crucially on when it is received—how near or far from the person's optimal point of consumption. See *supra* note 128; see also *infra* section IV.B.2 (discussing intrapersonal redistribution).

134. JOHN E. ROEMER, *EQUALITY OF OPPORTUNITY* 15 (1998). For a related discussion of "responsibility-sensitive metrics," including those developed by Roemer, see ADLER, *supra* note 73, at ch. 8, pt. III.

that exhibit different effort distributions, and both A and B are in the 95th percentile in terms of effort for their respective groups, then both would be deemed to have tried equally hard under Roemer's theory and would be entitled to equal outcomes—even though A's absolute level of effort might be lower or higher than B's.¹³⁵ Whatever one may think of the proposal as a general approach to distributive justice, there is an interesting "power equalization" feature at its heart that has traction in combating moral hazard concerns: society rewards individuals whose efforts exceed those of their reference group.¹³⁶

Applying the idea to the present context, we might seek to direct resources in a manner that benefits relatively high-willpower individuals within low-willpower groups. If we did not have to worry about "imitators"—high-willpower individuals who would try to slip into low-willpower groups¹³⁷—then such a plan would combine movement of resources to low-willpower individuals with rewards for exerting willpower effort. Significantly, however, rewarding willpower effort (even within low-willpower groups) means placing at a relative disadvantage those who exhibit less willpower. Thus, although I have included this approach under the rubric of compensating for low willpower, it incorporates strains of a quite opposite approach, to which I now turn.

B. REPRICING WILLPOWER LAPSES

Policymakers might respond to the fact that low-willpower people are less well off than high-willpower people by attempting to (further) deter people from willpower lapses. A system of rewards and penalties based on how well people manage intertemporal dilemmas could lead to fewer low-willpower types and more high-willpower types. Because "sin taxes" can be characterized as a rough attempt to enact this idea, much of the analysis of this approach will be taken up below in the course of discussing those instruments.¹³⁸ But some initial observations will help to highlight considerations that apply to this approach, even in the counterfactual case where willpower levels are observable.¹³⁹

One issue involves the possibility that penalties will fail to deter willpower lapses. Individuals who do not stick to their OACPs are already made worse off as a result. Because low-willpower people seem to be acting irrationally—failing to do what is in their best interest—it is not clear how responsive they

135. ROEMER, *supra* note 134, at 14–15.

136. As Roemer explains, the group as a whole might have less incentive to improve its distribution, but because individual members within it have an incentive to rise to the top of the group, the distribution would be expected to improve as well. *Id.* at 35.

137. Cf. Weisbach, *supra* note 55, at 85–87 (discussing problem of "mimicking" in the disability context).

138. See *infra* section III.C.

139. As discussed below, the possibility that such interventions will distort the choices of people without willpower problems presents a central concern. But even if we know that an individual suffers from low willpower, there may still be difficulties in pricing lapses appropriately.

will be to additional disincentives.¹⁴⁰ Yet sometimes the problem with existing disincentives is not that they are too low, but rather that they are temporally misplaced.¹⁴¹ Thus, policy instruments that move penalties to the temporal point at which willpower must be applied, raising the price of a lapse in currency that will not be discounted, could offer fresh traction on intertemporal dilemmas.¹⁴²

There is another problem, however. If low-willpower individuals do not respond to the price change that the government has introduced, then they will be made even worse off than before, relative to high-willpower people.¹⁴³ They must not only pay the new, higher price associated with the willpower lapse (now) but also suffer the effects of the lapse in their own lives (later). This result is difficult to justify on distributive grounds. Of course, if certain kinds of willpower lapses produce especially large externalities, repricing them could make good policy sense regardless of the impact on people's own well-being.¹⁴⁴ In that case, however, the policy justification would lie in the externalities themselves, not in concerns about willpower; the justification would apply with equal force to decisions made by people who hold consistent preferences for the externality-producing choice.

Finally, even if people do respond to governmentally engineered price changes, the fact that willpower lapses may substitute for each other makes the net effect unclear. Unless a policy mechanism can capture the entire universe of lapses, additional willpower exertions in one realm may be matched by additional or more severe lapses in another realm.¹⁴⁵ For example, penalizing people for a failure to save money might lead to better savings habits but worse health habits.¹⁴⁶ An even broader concern is raised by the fact that willpower may draw on a general store of cognitive powers, so that increasing the application of willpower may diminish effectiveness in other decisional or attentional realms.¹⁴⁷ For example, perhaps tightly controlling certain aspects of discretion-

140. Cf. DEMSETZ, *supra* note 103, at 25–26 (critiquing Robert Frank's suggestion of a progressive consumption tax as an antidote to competitive consumption by asking, "If the wealthy cannot discipline themselves to reduce expenditures on luxury goods, why do they react sensibly to a tax-imposed increase in the cost of a unit of stature?").

141. See Loewenstein & O'Donoghue, *supra* note 104, at 189 (observing that future punishments or rewards designed to deter vice "are generally likely to be ineffective for the very reason that people succumb to vices in the first place—because people tend to put disproportionate weight on costs and benefits that are immediate relative to those that are delayed, and more generally have a hard time fully attending to future consequences").

142. Imposing a tax on the present self may be easier said than done, however. See Whitman & Rizzo, *supra* note 39, at 428–29 (noting if a person subjected to a sin tax is able to borrow or has accumulated savings, a later self can be made to pay the tax).

143. See Loewenstein & O'Donoghue, *supra* note 104, at 190; Strnad, *supra* note 11, at 1254–55; *infra* text accompanying notes 209–10.

144. See, e.g., Korobkin, *supra* note 92, at 1673–83 (examining externality-based rationales for policy interventions).

145. For a recent paper examining the possibility that willpower exercised in one realm may leave less for use in another realm, see Ozdenoren et al., *supra* note 101.

146. See *id.* at 15–17 (modeling the case where willpower has alternative uses).

147. See *supra* note 98 and accompanying text.

ary consumption means paying less attention to the details of one's mortgage or performing less effectively on the job.

C. CONSTRICTING CHOICE

A third approach would seek to close the utility gap between high-willpower people and low-willpower people by blocking or mandating particular choices.¹⁴⁸ Our discussion above established that willpower can only operate within the space that is left open by the framework of external constraints. The tighter those constraints, the less willpower matters. A complete ban on borrowing, or strict limits on consumption choices, would make self-control less relevant. Similarly, forced savings or mandatory spending would constrain the available choice set. If applied across the board to people who vary as to willpower but are otherwise identical, such constraints would squeeze out some of the differences in well-being that willpower presently generates. Indeed, intelligently formulated restrictions could do more than that; to the extent they replicated what well-informed people without willpower problems would choose, they could raise overall well-being levels for low-willpower people without a corresponding drop in well-being for high-willpower people.

Directly improving well-being by limiting choice has some advantages over applying penalties to willpower shortfalls. Even if repricing lapses alters the extent to which they occur, the effort of engaging in self-control would remain.¹⁴⁹ Not so if a choice is simply placed out of reach.¹⁵⁰ An even more compelling advantage of placing choices out of reach is that the individual will never be required to bear both the cost of the lapse itself and an additional societal penalty.¹⁵¹ Moreover, unlike a transfer of funds to people who exhibit low willpower, these direct well-being improvements do not present an obvious moral hazard in inducing willpower reductions.

Nonetheless, the costs of limiting choice may be prohibitively high. When applied to people without willpower problems, such constraints compromise the ability to rearrange consumption without conferring offsetting benefits. Even if

148. Mandatory retirement savings programs are a prominent real-world example. See *infra* section III.D.

149. Ian Ayres has suggested that "commitment contracts" under which people stand to lose significant amounts of staked money would "take a future choice off the table" and thereby reduce the costs of exercising self-control—although he acknowledges "this is pure speculation." IAN AYRES, *CARROTS AND STICKS: UNLOCK THE POWER OF INCENTIVES TO GET THINGS DONE* 162 (2010). Because such contracts do not actually remove choice but instead only reprice lapses, it seems questionable that they could entirely short-circuit the self-deliberation associated with exercising self-control. However, perhaps large potential forfeitures would lead people to create and heed bright-line rules that would reduce exercise costs considerably. See *supra* note 105 and accompanying text.

150. We would need to know, however, whether the deprivation itself produces any sort of depletion effect, even aside from the exercise of willpower. See Fennell, *supra* note 13, at 99–100.

151. Note, however, that one response to this "double payment" problem would involve holding the fines in trust for the individual's later self, or making the fines into a kind of forced insurance purchase. See Strnad, *supra* note 11, at 1254. Thus, we can understand at least some "penalty" schemes as containing elements of forced decisions. See *infra* text accompanying note 212.

Table 1. Strategies and Costs

Costs	Strategy		
	Compensation	Penalties/Subsidies	Constricting Choice
Failure Costs	lower per failure but more failures	higher per failure but fewer failures	eliminated
Exercise Costs	lower in short run	higher in short run	eliminated
Erosion Costs	higher	lower or negative	higher

constrained choice sets could be selectively applied to those who struggle with self-control issues, information problems would remain. Unless OACPs are fully observable, it would not be clear which choices should be removed.¹⁵² Another concern is that reducing the choice set and thereby eliminating the need to exert willpower could weaken the development of that trait.¹⁵³ Whether we should worry about such a result depends in part on whether we view the quality of willpower as something valuable in itself for a culture to inculcate,¹⁵⁴ or as merely instrumental to achieving OACPs (and hence dispensable if OACPs can be achieved through other means).

D. TAKING STOCK

Table 1 summarizes how the three basic approaches to willpower heterogeneity surveyed above—directing resources toward low-willpower individuals, penalizing willpower lapses, and forcing better choices—interact with the three costs of self-control problems introduced earlier—failure costs, exercise costs, and erosion costs. The entries in the table assume idealized, error-free applications of the strategies; later, I take up the informational burdens that each approach entails, which raise the risk of mistakes.

First, consider the compensation strategy. Compensating for low willpower reduces the cost of each failure; the stakes of doing a poor intertemporal job are lessened through societal transfers. We might expect the transfers to also reduce exercise costs; after all, people presumably only exercise willpower to avoid failure, and the stakes of failure have now been lowered. This looks like a cost

152. To the extent that people have access to their own OACPs (or some approximation), however, they might provide input into the construction of the choice set, as through a voluntary precommitment mechanism. Precommitment will be discussed further in Part IV.

153. See, e.g., Posner, *supra* note 33, at 32 ("Social security prevents the younger self from selling the older self down the river, although at the same time it weakens the future-oriented self by reducing the benefits of thrift . . .").

154. See *id.* at 29–30 (noting potential cultural influences on "the relative strength of one's present-oriented and future-oriented selves" and observing that public policies, such as those that tax particular choices or reallocate resources intertemporally, affect the opportunity sets existing within a society).

savings. With exercise efforts reduced, however, failures become more likely, even if each is made less costly by societal transfers.¹⁵⁵ Hence, we would expect more failures, making the net effect on failure costs ambiguous. Further, because buffering failure reduces the marginal returns to willpower, there may be erosion costs associated with willpower atrophy over time.

Penalizing willpower lapses takes exactly the opposite approach.¹⁵⁶ By amplifying failure costs, penalties make failure even more painful than before. One would expect people to react by increasing their efforts to resist failure. These efforts will increase exercise costs, but they will also presumably reduce failure costs. When failure does occur, however, it produces a triple whammy: exercise costs, ordinary failure costs, and the added penalty.¹⁵⁷ Erosion costs are avoided; if anything, the increased exercise of willpower induced by the penalty should help to build up willpower over the long run. Again, the overall effects on well-being are uncertain; we would need to know how sensitive people are to penalties, how expensive willpower is to exercise, and how likely it is to fail even when exercised to the best of a person's ability.

The third approach, forcing particular choices, cleanly avoids both exercise costs and failure costs. Returning to our transaction-cost analysis, it would be as if an omniscient judge simply awarded the entitlement to the higher valuing user in a land use dispute, thus sidestepping the costs and risks of relying on bargaining. Yet we might have concerns about erosion costs, especially if the "judge" will not always be there to make the right choice for our various selves. Failure costs and exercise costs would continue to exact a higher price in utility from low-willpower people in any sphere in which the forced choice did not operate.

The entries in Table 1 gloss over some additional costs that would be present in any real-world willpower intervention. In particular, the informational burdens presented by the various approaches deserve attention. Even if we could identify low-willpower people, doing so would not resolve problems surround-

155. See Bankman & Weisbach, *Superiority*, *supra* note 3, at 1447 (suggesting that nontaxation of savings in an effort to help myopic people would lead to an undoing of that help through further myopic behavior).

156. We can say the same of subsidizing willpower successes. Even though a subsidy sounds less punitive than a tax, it still treats those who fail to engage in the preferred conduct worse in relative terms—which is not to say that it would necessarily produce equivalent results. See Saul Levmore, *Carrots and Torts*, in *CHICAGO LECTURES IN LAW AND ECONOMICS* 203, 205 (Eric A. Posner ed., 2000) ("Analytically equivalent rewards and penalties might produce very different reactions because most of us do not process information as automatons."). For a recent paper modeling the effects of savings subsidies in the presence of self-control problems, see Per L. Krusell et al., *Temptation and Taxation*, 78 *ECONOMETRICA* 2063 (2010). See also Weiss, *supra* note 52, at 1298–99 (noting that a subsidy for savings could correct for a myopic discount rate).

157. In addition to governmental penalties, people often self-inflict nonpecuniary penalties like guilt and regret, and might also be subject to shaming or stigma penalties from society or from their reference group. See, e.g., Edward L. Glaeser, *Paternalism and Psychology*, 73 *U. CHI. L. REV.* 133 (2006); Loewenstein & O'Donoghue, *supra* note 104, at 183. All of these penalties have the same effect of increasing the costs of failure. When the deterrent does not work, people incur failure costs that have been accordingly amplified.

ing the determination of OACPs or the appropriate levels at which to set any penalties or subsidies—and these determinations would be essential to keeping error costs low under either a repricing or choice-elimination strategy. The strategy of compensating low-willpower people requires little information beyond willpower levels, but presents heightened incentive problems. Further, to the extent we cannot observe or find workable proxies for willpower levels, we must worry not only about people losing their willpower in fact, but also about people pretending to do so.

III. WILLPOWER AND TAX POLICY

The discussion above abstracted away from the identification problems that beset efforts to address willpower in the real world. In this Part, I take a different tack. Rather than ask in an idealized manner what society ought to do about willpower heterogeneity, I ask what impacts, whether intended or unintended, existing and proposed tax policy decisions might have on people of varying willpower levels. As we will see, some approaches have the effect of directing resources to low-willpower people, others have the effect of penalizing willpower lapses, and still others operate by blocking or forcing choices. I will also consider the role of “choice architecture” that seeks to shape decisions without using force or overtly negative or positive incentives.¹⁵⁸

A. LIFETIME AND SUBLIFETIME TAX PERIODS

A perennial question in tax policy that has received significant recent attention involves the length of the tax period.¹⁵⁹ William Vickrey’s proposal of lifetime averaging would make the taxpayer’s lifetime the taxable period, with annual collections based on a running average.¹⁶⁰ Variations on this theme, such as averaging over a shorter span of years, have appeared in the literature,¹⁶¹ and some limited averaging provisions have appeared in the tax code.¹⁶² Lengthening the tax period is often recommended on grounds of horizontal equity. Within a progressive system, people with fluctuating earnings will face higher marginal rates during high-earning years and lower marginal rates during low-earning years. The highs are not counterbalanced by the lows, however, and these fluctuating earners are disadvantaged by the tax system relative to people who

158. See RICHARD H. THALER & CASS R. SUNSTEIN, *NUDGE: IMPROVING DECISIONS ABOUT HEALTH, WEALTH, AND HAPPINESS* 11–13 (2008).

159. See, e.g., Lily L. Batchelder, *Taxing the Poor: Income Averaging Reconsidered*, 40 HARV. J. ON LEGIS. 395 (2003); Neil H. Buchanan, *The Case Against Income Averaging*, 25 VA. TAX REV. 1151 (2006); Fennell & Stark, *supra* note 5; Shaviro, *supra* note 3; Liebman, *supra* note 4.

160. William Vickrey, *Averaging of Income for Income-Tax Purposes*, 47 J. POL. ECON. 379 (1939).

161. See, e.g., Batchelder, *supra* note 159, at 397–99, 421–36.

162. See, e.g., I.R.C. § 1301 (2006) (permitting farming and fishing income to be spread over the preceding three taxable years at the taxpayer’s election); I.R.C. §§ 1301–1305 (1982), *repealed by* Tax Reform Act of 1986, § 141(a), 100 Stat. 2085, 2117; see also Richard Schmalbeck, *Income Averaging After Twenty Years: A Failed Experiment in Horizontal Equity*, 1984 DUKE L.J. 509 (describing and critiquing income averaging provisions).

earn the same aggregate amount in a steady pattern.¹⁶³ If we believe that both ability and ability to pay are more closely keyed to multiyear or lifetime earnings than to annual earnings, longer tax periods seem sensible.

But using a longer tax period also means treating equivalently people who earn in different patterns within that longer period. According to the life-cycle hypothesis, different earning patterns should have no impact on well-being, because people can simply rearrange money within the life cycle to fund whatever consumption pattern is optimal. As we have seen, matters are not quite so simple. Another way of framing the question of the appropriate tax period is to ask whether all of the “selves” that make up an individual’s life should be considered part of the same taxable unit.¹⁶⁴ When tax or benefit policies place family members or others into units, what seems most important is the expectation that resources will be shared among the members.¹⁶⁵ If resources will in fact be shared between two people, it is administratively wasteful to tax one of them only to make redistributive payments to the other. More controversially, principles of horizontal equity might be thought to constrain the degree to which two resource-sharing units with the same total earnings should be treated differently based on how their earnings are divided up among their respective members.¹⁶⁶

In exploring whether temporal selves should be grouped together for tax purposes, then, we might want to examine how resource sharing works among them.¹⁶⁷ We want to know not only whether the selves are able to share resources (i.e., free of external constraints on borrowing or saving), but also whether they are willing to do so (a question of willpower). What impact does the choice of tax period have on high-willpower and low-willpower people,

163. See Vickrey, *supra* note 160, at 379; Fennell & Stark, *supra* note 5, at 28 & tbl.1.

164. See Zelenak, *supra* note 70, at 361–62.

165. See *id.* at 361 (observing that if economic identification or responsibility represents the principle upon which taxable units are formed, “a similar argument could be made for treating a younger self and an older self as a single tax equity unit, even if their status as separate persons is conceded”).

166. The desire to treat equal-earning couples equally clashes irreconcilably with the desire to treat equal-earning individuals equally regardless of marital status, if a progressive tax rate schedule is in place. See, e.g., Henry E. Smith, *Intermediate Filing in Household Taxation*, 72 S. CAL. L. REV. 145, 147 (1998) (asserting that “marriage neutrality, couples neutrality, and progressive rates are incompatible”). If members of a married couple take turns as the primary breadwinner, then grouping their incomes together for tax purposes over short temporal periods would have much the same effect as taxing each of them as individuals and lengthening the time period over which tax liability is calculated. Although it is unlikely that many households exhibit this precise pattern, it is worth noting that grouping different people together may substitute in some degree for the grouping together of different temporal selves.

167. The interaction between interpersonal and intrapersonal groupings would also require attention. It would be technically challenging (at best) to continue with the policy of grouping together different people into taxable units while also attempting to group together different temporal selves, given that people do not stay in the same household configurations throughout their lifetimes. See Zelenak, *supra* note 70, at 356 (discussing Vickrey’s recognition of and approach to this problem in the context of his lifetime averaging proposal).

Table 2. Four Earners

Earner	Period				
	Year 1	Year 2	Year 3	Year 4	All Years
A (high willpower)	10	10	10	10	40
B (low willpower)	10	10	10	10	40
C (high willpower)	20	0	20	0	40
D (low willpower)	20	0	20	0	40

respectively? The answer turns out to be more complicated than it might seem at first, and is best approached with an example. Table 2 shows the wage earnings¹⁶⁸ of four people, A, B, C, and D over a four-year period, ignoring interest. As indicated in parentheses, A and C are high-willpower individuals, whereas B and D are low-willpower individuals. Assume that each of the four individuals has an optimal available consumption plan (OACP)¹⁶⁹ that would involve perfect smoothing of consumption over the years, and that borrowing is unavailable. Suppose further that the self-control problems experienced by the low-willpower individuals, B and D, mean that income tends to be consumed very near the point at which it is earned.

A tax that is based on the entire period would treat all four individuals equally. But are they equally well off? Taxpayers A and B are in exactly the same position on both an annual and whole-period basis; they would be taxed equivalently regardless of which of these tax periods is chosen. Taxpayer A would have the ability to rearrange her income into a different consumption pattern, but because her earnings happen to fall into the same pattern as her OACP, she need not do so. Taxpayer B's low willpower renders him unable to rearrange his earnings into a better consumption pattern, but again, this does not matter because his earning pattern happens to match up with his OACP. What about C and D? C can easily (and, we will assume, costlessly) rearrange her earnings to match her OACP. Despite her fluctuating earning pattern, she is, in terms of consumption possibilities, in exactly the same position as A and B. D, however, lacks the willpower necessary to rearrange his earnings to match his OACP. His earnings "stick" and are consumed where they fall, which, unhappily, does not turn out to be his optimal pattern.

Consider now how the choice of tax period affects the four individuals. Annual taxation would treat A and B (steady earners) better than C and D (uneven earners) within a progressive tax system. That would mean treating C, who is relevantly like A and B, differently. Whole-period taxation would treat all four alike. This would remove the artificial distinction that the annual tax

168. Savings and investment income is ignored in this simple example.

169. See *supra* section I.B.2.

system draws between A and B on the one hand, and C on the other, but it would also sweep D, who seems to be relevantly different, into the same tax category. We might think that D would prefer this; it would cause his fluctuating earnings to be taxed the same way as the steady earnings of A and B. The annual tax period taxed his fluctuating earnings more heavily, and we might think that the last thing D needs is a heavier tax burden.

But the story is not so clear cut. The tax system does not just redistribute among different people, it also redistributes intrapersonally through the life cycle. At times, it does this in obvious ways (as through payroll taxes and Social Security benefits). Less recognized is the fact that the application of progressive rates to annual periods throughout the life cycle moves money from higher income selves to lower income selves.¹⁷⁰ An annual tax system thus places one's current self in the same distributive relationship with one's own poorer and richer selves as with all poorer and richer (temporal versions of) other people.¹⁷¹ And D may need redistribution from his other selves even more than he needs a tax break. C, however, can do just fine without intrapersonal redistribution. Under an annual tax system, C would cross-subsidize the tax system's regularization of D's income by being part of the pool of fluctuating earners to whom higher tax rates are applied.

Of course, earning patterns are not necessarily exogenous. Another way of looking at the story is to suppose that taxing fluctuating earners more heavily will induce more people to become regular earners. This is usually viewed as a distortion, and another reason for favoring lifetime taxation.¹⁷² But if many people struggle with self-control problems, further inducing them to take up earning patterns that are likely to more closely match their OACPs could be valuable. The lifetime tax period would not have that effect, although it might still encourage people to develop more willpower. D in our story could improve his situation by being more like C under a lifetime system, or by being more like B under an annual system. Which move is the more achievable goal for people with self-control problems may bear on our choice of tax periods.

There are many additional issues that I can only touch on briefly here. First, not all self-control problems take the form of consumption too closely tracking earnings. It is also possible for people to act hyperopically and push consumption too far away from the point at which money is earned. Second, not everyone wants to smooth out their consumption. If people wish to pile up

170. For discussion of this point, see, for example, Polinsky, *supra* note 5, at 229–33; Fennell & Stark, *supra* note 5, at 42–45. This assumes that taxes are used to provide goods and services that are spread among the community on some basis other than the amount of current-year taxes paid. See Zelenak, *supra* note 70, at 368 n.165.

171. The textual statement assumes the same structure of tax rates persists over time, which will not necessarily be the case. In this respect, at least, the current self's distributive relationship with its contemporaries may differ from that which it enjoys with past and future selves (whether one's own, or those of others).

172. See, e.g., Fennell & Stark, *supra* note 5, at 32; Shaviro, *supra* note 3, at 767.

consumption into heaps and alternate them with periods of low consumption, for example, then D's willpower problems would interfere less with that OACP than would B's. Third, borrowing adds new wrinkles, both by opening up additional vistas for self-control problems and by making it possible for people to smooth consumption backwards. Yet the example helpfully emphasizes the potential role of intrapersonal redistribution within an annual tax system. It would be possible to do even more intrapersonal redistribution through the tax system by employing mechanisms like age-based taxation,¹⁷³ or by simply altering the timing of tax collection.¹⁷⁴ I will consider below the possibility of allowing people to opt into particular tax timing regimes based, among other things, on their preferences for intrapersonal redistribution.¹⁷⁵

B. INCOME TAXES AND CONSUMPTION TAXES

Closely allied conceptually to the question of the appropriate tax period is the question of whether an income or a consumption tax should be used.¹⁷⁶ If we take the lessons of the life-cycle hypothesis to heart, an optimal tax system would leave individuals free to arrange both labor and consumption in any temporal pattern they choose.¹⁷⁷ Just as annual taxation can distort earning patterns, taxing savings—which an income tax does, but a consumption tax, at least in its “prepaid” form, does not—can distort consumption patterns.¹⁷⁸ In addition, the results are often deemed unfair to savers.¹⁷⁹

173. See Polinsky, *supra* note 5, at 250; Fennell & Stark, *supra* note 5, at 47–49.

174. See, e.g., Polinsky, *supra* note 5, at 249 (discussing the possibility that households could defer tax payments without changing their present value tax liability); Shaviro, *supra* note 3, at 761–62 (distinguishing annual tax liability from annual cash flow settlement); Fennell & Stark, *supra* note 5, at 58–63 (discussing the potential for altering collection protocols).

175. See *infra* section IV.B.3.

176. See Shaviro, *supra* note 3, at 748–49; see also Zelenak, *supra* note 70, at 333, 351–54.

177. See Shaviro, *supra* note 3, at 788 (noting the implications of the permanent-income hypothesis for the choice of tax base as well as for the choice of tax period).

178. On this account, choices about when to consume are no different than choices between different goods. See, e.g., Bankman & Weisbach, *Superiority*, *supra* note 3, at 1423–27 (analogizing the choice to one between prunes and figs); Shaviro, *supra* note 3, at 765 (analyzing “earlier consumption” and “later consumption” as two goods). Like any other tax that applies different rates to different commodities, a tax on savings adds a distortion to the labor/leisure distortion that already exists. See A.B. Atkinson & J.E. Stiglitz, *The Design of Tax Structure: Direct Versus Indirect Taxation*, 6 J. PUB. ECON. 55, 56 (1976); Bankman & Weisbach, *Superiority*, *supra* note 3, at 1414–19. The conclusion that the results are unambiguously less efficient is based on the assumption that the new distortion to consumption timing piles on top of, without in any way alleviating, the original labor/leisure distortion. See, e.g., Shaviro, *supra* note 3, at 783. This assumption is based, in turn, on the claim that a tax on savings distorts labor just as much as a wage tax. See Bankman & Weisbach, *Superiority*, *supra* note 3, at 1422 (asserting that a tax on income from savings “distorts work effort in exactly the same manner as if the work had been taxed directly”). If people are myopic, this assumption might not hold true; the deferred tax on savings would have less of an impact on labor than would the immediate wage tax. See, e.g., Kaplow, *supra* note 5, at 2 (observing that “taxes on capital—or, equivalently, differential taxes on future consumption—are ordinarily levied in the future, raising the possibility that they may have less of an effect on the current labor supply of myopic individuals”).

179. For a discussion of this argument and the sort of example used to make it, as well as a counterargument, see Kelman, *supra* note 7, at 653–58.

If we were to simply eliminate the tax on all savings without changing anything else, the tax system would become less progressive, assuming people with high labor incomes save more than people with low labor incomes.¹⁸⁰ But, as proponents of the consumption tax have emphasized, the change could be made distributively neutral by making the tax on labor income more progressive, so that each wage class continues to bear the same relative burden as they would under a system in which savings as well as earnings were taxed.¹⁸¹ The distributive effects would be different within wage classes than they are presently, but the system as a whole would not have to become less progressive between wage classes.¹⁸² If it were possible to undertake such a distributively neutral shift,¹⁸³ how would high- and low-willpower people, respectively, fare?

If we think that wage levels are positively correlated with willpower levels, then a progressive rate structure would already (on average) deliver relief to low-willpower groups. Not taxing savings would then reward (or at least not punish) those relatively high-willpower individuals within low-willpower groups, much like Roemer's notion of rewarding effort that is relatively high within a given reference group.¹⁸⁴ Such an approach would have the attractive characteristic of not deterring individuals from exerting willpower effort while at the same time directing more resources (through the progressive rate structure) to those in low-willpower groups. The argument depends, however, on the empirical assumption that willpower levels correlate with wage levels. There is some evidence that impatience is inversely related to cognitive ability,¹⁸⁵ which in turn would be expected to correlate with wage income. While impatience is not the same thing as low willpower, low willpower is one reason that impatient

180. In other words, savings might be characterized as a "luxury good" that is predominantly available to the wealthy. See, e.g., Bankman & Weisbach, *Superiority*, *supra* note 3, at 1428; Christopher D. Carroll, *Why Do the Rich Save So Much?*, in DOES ATLAS SHRUG? THE ECONOMIC CONSEQUENCES OF TAXING THE RICH 465, 481 (Joel B. Slemrod ed., 2000).

181. See, e.g., Bankman & Weisbach, *Superiority*, *supra* note 3, at 1428–30. Indeed, efficiency gains from the system might be used to underwrite a more progressive tax system than the one we have currently. See *id.*

182. See *id.* at 1439–40 (explaining that switching to a "replicating wage tax" from an income tax "will redistribute from spenders to savers" within wage classes).

183. Maintaining distributive neutrality while eliminating a tax on savings would require placing a higher tax rate on a narrower base, a move that might well prove politically impossible. Cognitive work suggests that how a tax burden is presented and framed determines how it is evaluated. See, e.g., Jonathan Baron & Edward J. McCaffery, *Masking Redistribution (or Its Absence)*, in BEHAVIORAL PUBLIC FINANCE, *supra* note 12, at 85, 88.

184. See *supra* text accompanying notes 134–37.

185. See Thomas Dohmen et al., *Are Risk Aversion and Impatience Related to Cognitive Ability?* 100 AM. ECON. REV. 1238, 1257 (2010) (finding, based on tests administered to a sample of over 1000 people age seventeen and older living in Germany, "that people with lower cognitive ability are . . . significantly more impatient" after "controlling for personal characteristics, educational attainment, income, and liquidity constraints"). An earlier study of ninety-two Chilean high school students generated similar results. See Daniel J. Benjamin et al., *Who Is "Behavioral"? Cognitive Ability and Anomalous Preferences* (May 5, 2006) (working paper), available at <http://ssrn.com/abstract=675264>.

behaviors may at times be observed.¹⁸⁶ But there is also significant heterogeneity in savings behaviors within wage-income levels, which might at least be suggestive of willpower heterogeneity.

Would wealth levels (at a given wage level and life stage) offer a better gauge of willpower levels? Presumably, the relationship between wealth accumulation and willpower is nonrandom, and there is some empirical evidence connecting the two.¹⁸⁷ The contours of the relationship are not entirely straightforward, however. For one thing, self-control problems can manifest in both oversaving and undersaving.¹⁸⁸ Consumption-timing preferences (as distinct from willpower) can explain some differentials in savings behavior, as can differences in earning patterns and in inherited wealth. Nonetheless, the relative accumulation of wealth at any given income level and life-cycle stage offers at least a weak informational signal about willpower. However, this information might be taken into account in ways other than an income tax on savings and investments.¹⁸⁹

Thus far, I have been using as my model for the consumption tax what is sometimes termed the “prepaid” version, which simply taxes labor income and does not tax any savings or investment income. Operating on the premise that earned income will be consumed sooner or later, such a tax collects upfront for the consumption that will inevitably follow, without regard to when consump-

186. See *supra* text accompanying note 33 (defining willpower and distinguishing it from stable time preferences). For another take on the connection between intelligence and self-control, see Posner, *supra* note 33, at 28–29 (observing that “as imagination is a component of intelligence, a more intelligent person will be more future-oriented than will a less intelligent one” but also noting a countervailing factor—the intelligent person’s ability to “develop rationalizations that may deceive the future-oriented self”).

187. See, e.g., Ameriks et al., *supra* note 25, at 968–69 (in a study involving the hypothetical allocation of ten dinner certificates, finding that regression analysis “identifies a clear relationship between self-control problems and wealth accumulation”); John Ameriks et al., *Wealth Accumulation and the Propensity To Plan*, 118 Q.J. ECON. 1007, 1039 (2003) (finding a correlation between planning behaviors and wealth accumulation based on survey and accounting data collected from TIAA-CREF participants and positing that “effortful self-control” may be involved).

188. See, e.g., Ameriks et al., *supra* note 187; see also Rick et al., *supra* note 18, at 768 (discussing “tightwads” whose “affective reaction to spending may lead them to spend less than their more deliberative selves would prefer”). Not only may people oversave due to miserliness, they may also do so as a result of excessive rule following prompted by their own propensities to undersave. See *supra* text accompanying notes 85–87.

189. Bankman and Weisbach have noted that even if some marginal tax on savings were supported by the “indicator good” argument, there is no particular reason to think that applying the *same* marginal tax to savings as to labor income would be warranted. Bankman & Weisbach, *Consumption*, *supra* note 3, at 801; see also Deborah M. Weiss, *Can Capital Tax Policy Be Fair? Stimulating Savings Through Differentiated Tax Rates*, 78 CORNELL L. REV. 206, 227–29 (discussing separate tax schedules for capital and wage income, as well as the possibility of separate capital tax schedules applicable to different wage groups). Another alternative would be a periodic wealth tax, which has sometimes been discussed as a possible adjunct to a consumption tax. See, e.g., John K. McNulty, *Flat Tax, Consumption Tax, Consumption-Type Income Tax Proposals in the United States: A Tax Policy Discussion of Fundamental Tax Reform*, 88 CALIF. L. REV. 2095, 2182 (2000) (citing COMMISSION CHAIRED BY PROFESSOR J.E. MEADE, INST. FOR FISCAL STUDIES, THE STRUCTURE AND REFORM OF DIRECT TAXATION (1978)). In section IV.B.3, I will consider another possible way to incorporate information about wealth accumulation into a tax system.

tion actually occurs. Another possibility is a “postpaid” consumption tax under which tax liability for a given period is based on actual consumption within that period. If a progressive, postpaid system were adopted, as Edward McCaffery has advocated,¹⁹⁰ it would have some interesting implications for willpower analysis. McCaffery views savings used for consumption smoothing as legitimately nontaxable, but advocates taxing savings that enable consumption above this “smoothing” baseline.¹⁹¹ He bases his normative case for this approach primarily on its heavier taxation of those whose consumption horizons are expanded by what is, to them, a windfall, as where one generation is able to consume at a much higher level than their earnings would otherwise permit, due to the savings and bequests of the prior generation.¹⁹² But a postpaid, progressive consumption tax system would have the additional effect of encouraging people to smooth their own consumption through the life cycle—a feature that McCaffery also views as attractive.¹⁹³

Notice that in this regard a postpaid, progressive consumption tax would present the flip side of the horizontal equity concerns that Vickrey raised about annual taxation. Instead of taxing more heavily those who earn unevenly, as annual taxation does, McCaffery’s proposal would tax more heavily those who *spend* unevenly. The progressive rate structure effectively penalizes consumption that occurs in large lumps; the lower marginal rate applied to the valleys between these lumps will not counterbalance the tax effects of these spending spikes. Thus, the rate structure rewards smooth consumption (although McCaffery proposes brackets wide enough that the smoothing need not be perfect to reap those rewards).¹⁹⁴ Because such a tax system favors one consumption pattern over another, it would be expected to produce distortions in the direction of that pattern. Of course, if one believes that the smooth consumption pattern is normatively superior,¹⁹⁵ these shifts would be viewed not as distortions but rather as desirable corrections.

Can we view the postpaid, progressive consumption tax as an example of penalizing low willpower? Low-willpower people would be less able to conform their consumption to a specified pattern than would high-willpower people, assuming that the two groups do not systematically vary with respect to how closely their earning patterns already approximate it (or along other relevant dimensions such as access to capital). The distributive results would be unattractive to the extent that low-willpower people failed to achieve the requisite degree

190. Edward J. McCaffery, *A New Understanding of Tax*, 103 MICH. L. REV. 807, 854–56 (2005).

191. *Id.* at 815–16.

192. *Id.* at 870–73.

193. *Id.* at 882–84.

194. *Id.* at 882–83.

195. McCaffery takes this view. *See id.* at 884 (arguing that “there are paternalistic reasons to try to get individuals actually to smooth their consumption” and opining that “[i]t is prudent and good to live within one’s means, to borrow sensibly in youth and to save responsibly in middle age”). However, McCaffery emphasizes that his approach is driven primarily by administrative considerations, with the effects on consumption smoothing representing a “fortuity.” *Id.*

of smoothing and suffered from higher tax burdens as a result. Would there be a countervailing benefit for those members of the low-willpower population who responded to the incentive and engaged in a greater degree of consumption smoothing? Perhaps, but we would need to know more.

As I have emphasized already,¹⁹⁶ we do not know what the (pretax) OACP of any particular person or group of people looks like, so it is difficult to infer whether observed uneven consumption is a product of low willpower, mere preferences, or other constraints.¹⁹⁷ If OACPs typically involve very smooth consumption, then penalizing uneven consumption might encourage many people to do a better job of achieving their OACPs. But when OACPs involve lumpy, uneven consumption, penalizing that uneven consumption would introduce a deadweight loss: people with lumpy OACPs who switched to a smooth pattern would suffer diminished utility without delivering any revenue to the tax system.

Notwithstanding these criticisms, the approach embodied in McCaffery's proposal is a familiar one: that of repricing certain kinds of consumption choices that are thought to be harmful to society or to the people making them. We see this same approach in a broad range of taxes and subsidies for activities that are disfavored or favored on normative grounds.

C. SIN TAXES (OR VIRTUE SUBSIDIES)

Although we usually think that taxes work better the less they distort behavior, some taxes (and subsidies) intentionally reprice behavior in the hope of aligning it more closely with the social optimum.¹⁹⁸ Pigouvian taxes are designed to correct for externalities—costs that would not otherwise be taken into account in the decision maker's calculus.¹⁹⁹ In a world of zero transaction costs, the opportunities for bargaining would cause every cost to be taken into

¹⁹⁶ See *supra* text accompanying note 152.

¹⁹⁷ The tax system can be understood as one input into the calculation that determines an individual's OACP, and heavily taxing uneven consumption could turn what would otherwise be a lumpy-consumption OACP into an OACP featuring smooth consumption. But because we want to examine whether some other consumption pattern would have delivered more lifetime utility in the absence of the behavioral influence of the tax, we are interested in people's pretax OACPs in the context of the present discussion.

¹⁹⁸ See, e.g., Kyle D. Logue & Joel Slemrod, *Of Coase, Calabresi, and Optimal Tax Liability*, 63 TAX L. REV. 797, 829–30 (2010) (distinguishing Pigouvian taxes, which are designed to affect activity levels, from revenue-raising taxes which seek to avoid doing so). My discussion focuses on corrective taxes directed at intrapersonal dilemmas of self-control. A distinct question is how the design of taxes targeting externalities (interpersonal dilemmas) addresses cognitive biases and time preferences. See, e.g., Brian Galle & Manuel Utset, *Is Cap-and-Trade Fair to the Poor? Short-sighted Households and the Timing of Consumption Taxes*, 79 GEO. WASH. L. REV. 33, 63–82 (2010).

¹⁹⁹ Pigou advocated taxes or subsidies to close the gap between the private and social payoffs of an act. A.C. PIGOU, *THE ECONOMICS OF WELFARE* 172–203 (4th ed. 1932). Thus, a Pigouvian tax charges an actor an amount equal to the marginal cost of the external harm he inflicts. See, e.g., Maureen L. Cropper & Wallace E. Oates, *Environmental Economics: A Survey*, 30 J. ECON. LITERATURE 675, 680 (1992) (defining Pigouvian taxes).

account.²⁰⁰ In many real-world contexts, however, external costs are unlikely to be internalized by the parties imposing them. The same principle can be applied in the case of *internalities*, or costs that one temporal self imposes on other selves.²⁰¹

Translating Pigouvian taxes designed for externalities into the intrapersonal context presents a problem, however: it will typically be much less clear that an *unaccounted for* cost has actually been imposed on another party.²⁰² The question is not whether a given temporal self causes another self to suffer some observable harm, but rather whether the acting self did so without taking into account the impact on the later self. To know whether this is the case, we need some idea of the transaction-cost environment surrounding the individual's internal deliberations.²⁰³ One might reasonably argue that some individuals approach a Coasean state in which different temporal selves frictionlessly transact.²⁰⁴ This assumption is indeed implicit in the life-cycle model. People who are consistently capable of making perfect intertemporal tradeoffs are no doubt the exception, but many people do regularly take the effects on other selves into account in their decision making. For example, someone may choose to eat a bowl of ice cream fully recognizing and accepting the likely impact on her weight and health.²⁰⁵ If the current self is already internalizing all the costs

200. R.H. Coase, *The Problem of Social Cost*, 3 J.L. & ECON. 1, 2–8 (1960). For this reason, a cost imposed on another party is not necessarily an externality. We must examine whether the actor took the impacts in question into account, as by agreeing to pay for the costs or refusing a payment to cease. See, e.g., DUKEMINIER ET AL., *PROPERTY* 49 (7th ed. 2010).

201. See, e.g., R.J. Herrnstein et al., *Utility Maximization and Melioration: Internalities in Individual Choice*, 6 J. BEHAV. DECISION-MAKING 149, 150 (1993) (defining “internality” as “a within-person externality”); Ted O’Donoghue & Matthew Rabin, *Optimal Sin Taxes*, 90 J. PUB. ECON. 1825, 1827–30 (2006) (applying Pigouvian analysis to internalities). Willpower lapses are only one possible source of internalities; selves may impose costs on other selves without even realizing that they are doing so. See, e.g., Herrnstein et al., *supra*, at 154.

202. See WHITMAN, *supra* note 66, at 1 (criticizing current versions of internality theory for “ignor[ing] the possibility of within-person bargaining and other private solutions to self-control problems”).

203. On this question, and the difficulty of getting good information about it, see Ainslie, *supra* note 107, at 139, 166–70. See also WHITMAN, *supra* note 66, at 6–13 (analyzing intrapersonal bargaining opportunities and potential breakdowns in them).

204. On the other hand, the inability to enter into binding contracts with one’s other selves arguably makes the transaction cost environment less accommodating than in the interpersonal case. See WHITMAN, *supra* note 66, at 9–10 (noting this and other differences between the transaction cost problems faced by different selves and different people).

205. See *id.* at 11 (discussing an example in which the choice to eat a Twinkie is fully internalized). To be sure, full internalization of this sort confronts some difficulties, including the fact that future impacts tend to be less tangible, in part due to the uncertainty surrounding them. See Scott Rick & George Loewenstein, *Intangibility in Intertemporal Choice*, 363 PHIL. TRANSACTIONS ROYAL SOC’Y B: BIOLOGICAL SCI. 3813 (2008). Delayed effects also frequently depend on interactions with other decisions over time, making it less clear what the impact of any given choice will ultimately be. See, e.g., Dražen Prelec & R.J. Herrnstein, *Preferences or Principles: Alternative Guidelines for Choice*, in STRATEGY AND CHOICE 319, 323 (Richard J. Zeckhauser ed., 1991) (describing “situations in which the economically significant variables are aggregates of many temporally distinct decisions, each of which, individually, has little impact”).

of the decision, a tax generates rather than corrects a distortion.²⁰⁶ A heavy tax on ice cream might induce a shift to, say, chewing gum, producing a reduction in the person's lifetime well-being and raising no revenue for the government—a deadweight loss.

Some additional concerns about repricing conduct have already been raised above.²⁰⁷ Not only may a tax fail to properly match the impacts of the conduct in question, especially when nonlinearities are present,²⁰⁸ it also imposes especially heavy burdens on those with the lowest stocks of willpower by adding an external penalty to the costs of willpower failure.²⁰⁹ If the tax is accurately set to match the damage that the activity does to a future self, then those who choose to pay and continue suffer twice as much harm as they would in the absence of the tax.²¹⁰ One way around this difficulty is to let the later self receive the tax proceeds collected from the earlier self; the money will then compensate her for her earlier self's bad decisions.²¹¹ If the actions of the earlier self produce a risk of harm rather than a certainty, we might treat the tax payments as insurance premiums that go toward treating the problems that the later self may develop.²¹² At this point, we can reframe the policy intervention as a forced purchase of insurance bundled with the good in question, or as a withdrawal of a previously available choice (buying Good X on its own). The idea of withdrawing choices outright is well represented among implemented and proposed policies, as the next section explains.

D. FORCED AND FORBIDDEN INTERTEMPORAL CHOICES

Social Security offers a good example of a mandated intertemporal tradeoff, and its interactions with myopic decision making have received significant

206. See, e.g., WHITMAN, *supra* note 66, at 11.

207. See *supra* section II.B.

208. See, e.g., Strnad, *supra* note 11, at 1244 (discussing complexities associated with nonlinear impacts). To be sure, the same problem with nonlinearity exists when taxes attempt to correct for externalities. However, measurement difficulties may be especially acute for internalities. See *id.*

209. See *id.* at 1254; cf. Loewenstein & O'Donoghue, *supra* note 104, at 183 (explaining that when negative emotions associated with giving in to temptation fail to prevent the lapse, "people, in effect, pay twice for their indulgences: they incur the material negative consequences that result, and they also experience negative emotions as a result of their lapse"); *id.* at 190 (explaining that "interventions [that] involve manipulating immediate emotions such as guilt and fear . . . run into exactly the same problems as do the self-control strategies under discussion: when they don't succeed in altering behavior, they merely impose additional costs on people") (emphasis omitted).

210. Strnad, *supra* note 11, at 1254. As noted above, it might actually be a "triple whammy" if exercise costs are unsuccessfully incurred as well. See *supra* text accompanying note 157. Guilt and other nonpecuniary penalties could raise the cost even higher. See Loewenstein & O'Donoghue, *supra* note 104, at 183.

211. See Bhattacharya & Lakdawalla, *supra* note 10. This requires, of course, that the earlier self actually bear the burden of the tax—which may not be the case if borrowing or savings are available. See Whitman & Rizzo, *supra* note 39, at 428–29.

212. See Strnad, *supra* note 11, at 1255.

attention.²¹³ Although forcing people to allocate money to later periods might be justified on a number of grounds, including control of the externalities from widespread poverty among the elderly, some of the advantages relate directly to self-control. Placing hard constraints on choice sets offers a way around the costs associated with low willpower. Not only does such an approach keep people from making unfortunate intertemporal tradeoffs through a lapse of willpower, it also avoids the less dramatic problem of people burning up limited cognitive resources in refraining from such a lapse.²¹⁴ Thus, Social Security produces results that might resemble those brought about by willpower without any exertion of self-control, saving people the costs of avoiding temptation.²¹⁵

A variety of other policies similarly operate to foreclose particular choices or to remove particular products from the market. Regulatory controls on prices²¹⁶ and on product attributes withdraw choices or buffer their negative effects.²¹⁷ These restrictions could have the effect of allocating more surplus to the consumer, or they might simply drive away suppliers in ways that remove options from the consumer's choice set. Consider, for example, tighter limits on mortgage lending. If regulatory limits placed certain kinds of loans out of reach, people need not exert willpower to keep themselves from taking on that type of debt; the price-product bundle is unavailable. As in the case of Social Security,

213. See LOUIS KAPLOW, *THE THEORY OF TAXATION AND PUBLIC ECONOMICS* 291–301 (2008); Diamond & Köszegi, *supra* note 130; Feldstein, *supra* note 5; Ayşe İmrohoroglu et al., *Time-Inconsistent Preferences and Social Security*, 118 Q.J. OF ECON. 745 (2003); Kumru & Thanopoulos, *supra* note 5; Weiss, *supra* note 52, at 1298–99; Helmuth Cremer et al., *Forced Saving, Redistribution, and Nonlinear Social Security Schemes* (CESifo, Working Paper No. 2325, 2008), available at <http://ssrn.com/abstract=1145182>; Kaplow, *supra* note 5. Social Security embodies just one possible design approach to a mandatory retirement savings program. See Dan Ariely, *Want People To Save? Force Them*, DAN ARIELY BLOG (Sept. 25, 2010), <http://danariely.com/2010/09/25/want-people-to-save-force-them/> (discussing Chile's legally mandated retirement savings program, in which 11% of salary must be channeled to a retirement account, but employees retain some choice as to the risk level).

214. The idea that exercising self-control is costly is often explicitly included in economic models of intertemporal choice. See, e.g., Gul & Pesendorfer, *supra* note 110, at 1420 (“utility penalty” from the exercise of self control); Shefrin & Thaler, *supra* note 57, at 612 (“psychic cost” of willpower); Ozdenoren et al., *supra* note 101, at 4 (modeling the depletion effects of exercising willpower).

215. See Kumru & Thanopoulos, *supra* note 5, at 774–75 (noting the effects of Social Security in reducing the costs of exercising willpower, as well as the possibility that it could reduce self-control efforts among the young).

216. It is worth noting that limits on prices, such as interest rate caps on consumer loans, take exactly the opposite approach of an intrapersonal Pigouvian tax. Rather than aiming to reduce the harm caused by an activity by raising its price (and thus deterring participation), such reforms try to reduce the harm caused by an activity by lowering its price, even though this move would also be expected to increase demand. See Richard Posner, *Have We Lost the Moral Values That Undergird a Commercial Society?*, BECKER-POSNER BLOG (June 15, 2008, 7:09 PM), <http://www.becker-posner-blog.com/2008/06/have-we-lost-the-moral-values-that-undergird-a-commercial-society-posner.html> (critiquing an argument by David Brooks in favor of increased lending by churches and foundations by observing that if the loans are made available “at lower interest rates than payday loans, the former payday borrowers will borrow more”).

217. Bans on certain product attributes might also be recast as repricings. For example, tar and nicotine levels might be regulated or alcohol content limited in an effort to protect consumers. Because consumers can counter the restriction by consuming more of the product, a possible effect is simply to raise the cost of consumption, as with a sin tax.

this choice withdrawal has two potential benefits. First, it means that people will not make certain kinds of borrowing choices. Second, it means that people will not waste the cognitive energy that it takes to resist those borrowing choices.

These advantages come with some significant downsides, however. First, the “energy savings” benefit might not prove advantageous over the long run, if taking too many decisions away from individuals causes willpower to atrophy over time.²¹⁸ Given how little we know about the precise operation of willpower, we cannot be sure whether the short-run conservation advantages of avoiding the exertion of willpower will outstrip the long-run “strength training” advantages of regularly making such exertions. Second, blocking decisions impedes autonomy—including that of high-willpower people who do not want or need to have the choice taken from them. Indeed, the blocked choice may be an integral part of the OACPs of many people, and although blocking it off may help certain low-willpower individuals achieve their OACPs, that gain comes at the cost of thwarting the ability of high-willpower people to pursue their OACPs.²¹⁹

E. STICKY DEFAULTS

An in-kind form of repricing that tries to overcome the difficulties associated with withdrawing choices outright is the notion of “nudging” through default selections.²²⁰ In the realm of intertemporal choice, such nudges generally amount to making the more patient or farsighted choice the default. The Obama Administration has embraced this approach in the context of retirement planning,²²¹ following research that shows how automatic participation in 401(k) programs can keep procrastination from eroding the potential savings of employees.²²² Such default selections aspire to an “asymmetric paternalism” that helps

218. See *supra* section I.C.3 (discussing “erosion costs”).

219. For a general critique of libertarian paternalism based on its tendency to burden more rational individuals in order to provide benefits to those who are less rational, see Gregory Mitchell, Review Essay, *Libertarian Paternalism Is an Oxymoron*, 99 Nw. U. L. REV. 1245, 1269–75 (2005).

220. See generally THALER & SUNSTEIN, *supra* note 158.

221. See Emily Brandon, *5 Ways Obama's Budget Will Impact Retirees*, U.S. NEWS & WORLD REP., Feb. 14, 2011, <http://money.usnews.com/money/blogs/planning-to-retire/2011/02/14/5-ways-obamas-budget-will-impact-retirees> (reporting that Obama's 2012 budget “proposes requiring employers that do not currently offer a retirement plan to enroll their employees in a direct-deposit IRA account” unless the employee opts out or the business qualifies for an exemption due to its small size). Additional applications might include default selections designed to foster more annuitization. See Ron Lieber, *The Unloved Annuity Gets a Hug from Obama*, N.Y. TIMES, Jan. 30, 2010, at B1 (referring to WILLIAM G. GALE ET AL., RET. SEC. PROJECT, INCREASING ANNUITIZATION IN 401(K) PLANS WITH AUTOMATIC TRIAL INCOME (2008), available at http://www.brookings.edu/~media/Files/rc/papers/2008/06_annuities_gale/06_annuities_gale.pdf).

222. See, e.g., James J. Choi et al., *Passive Decisions and Potent Defaults*, in ANALYSES IN THE ECONOMICS OF AGING 59 (David A. Wise ed., 2005) [hereinafter Choi et al., *Passive Decisions*] (modeling impacts of 401(k) defaults); James J. Choi et al., *For Better or for Worse: Default Effects and 401(k) Savings Behavior*, in PERSPECTIVES IN THE ECONOMICS OF AGING 81, 83 (David A. Wise ed., 2004) (finding in a study of three large firms “that automatic enrollment has a dramatic impact on participation rates” leading to enrollments in excess of 85 percent, whereas previous enrollments at

those who need it without imposing large costs on those who do not.²²³ While advocates of such policies recognize that opting out does impose a cost, they suggest that expenditures can be kept to a minimum, as with Thaler and Sunstein's "'one-click' paternalism."²²⁴ Moreover, in cases where it is impossible to avoid having *some* default,²²⁵ there will inevitably be costs associated with opting out.

The usual reason for advocating a small nudge (an easy opt-out procedure) over a forceful shove (a more difficult procedure for opting out) is to avoid imposing costs on those who rationally disprefer the default. But in deciding how sticky to make a given default, we should worry not only about people who rationally choose to opt out, but also about those who *irrationally* opt out. Like a tax or subsidy, a default alters the relative prices of making a particular choice, but the differential is collected in hassle and effort, rather than in dollars. Just as people may make an undesirable temporal choice under a regime in which those choices are taxed, people may opt out even when they should not. An unheeded sin tax makes the "sinner" worse off than before (enduring both the bad results of the habit and the tax);²²⁶ similarly, an unheeded nudge leaves the opter-out worse off than before (enduring both the hassle of opting out and the bad results of the choice). However, in the sin-tax context the money collected could, at least in theory, go toward easing the plight of the later self (as by using cigarette tax revenues to fund the treatment of lung cancer). The costs of opting out are simply lost.²²⁷

A default's impact is only partly a function of inertia; some of the default's effects flow from conveying information or advice about what is best in the long run.²²⁸ In this respect, the default choice resembles other efforts to educate

those firms "ranged from 26 to 43 percent after six months of tenure . . . and from 57 to 69 percent after three years of tenure").

223. See Colin Camerer et al., *Regulation for Conservatives: Behavioral Economics and the Case for "Asymmetric Paternalism,"* 151 U. PA. L. REV. 1211, 1212 (2003) ("A regulation is asymmetrically paternalistic if it creates large benefits for those who make errors, while imposing little or no harm on those who are fully rational."); see also Ted O'Donoghue & Matthew Rabin, *Procrastination in Preparing for Retirement*, in BEHAVIORAL DIMENSIONS OF RETIREMENT ECONOMICS 125, 150 (Henry J. Aaron ed., 1999) (presenting the equivalent concept of "cautious paternalism").

224. THALER & SUNSTEIN, *supra* note 158, at 248–49.

225. To take one of Thaler and Sunstein's examples, cafeteria designers must put food in *some* order; they might therefore consciously select an arrangement that encourages patrons to make healthier selections. THALER & SUNSTEIN, *supra* note 158, at 1–6; see *id.* at 86 (noting the possibility that, in some contexts, default selections can be avoided by requiring people to make a choice).

226. See Strnad, *supra* note 11, at 1254.

227. Cf. Glaeser, *supra* note 157, at 135 (2006) (citing Loewenstein & O'Donoghue, *supra* note 104, at 190) (observing that the "psychic tax" that soft paternalism imposes through stigmatizing certain behaviors "provides no revenues").

228. See, e.g., THALER & SUNSTEIN, *supra* note 158, at 35, 83; Choi et al., *Passive Decisions*, *supra* note 222, at 70 (discussing defaults as providing "implicit advice").

decision makers.²²⁹ Such approaches are largely orthogonal to the question of willpower (which assumes knowledge of a better long-term plan than the current self wishes to undertake).²³⁰ But educational efforts could produce a culture in which certain kinds of consumption and savings patterns receive higher levels of approval and status, and this could potentially influence the development and deployment of willpower. More interestingly, some instruments for imparting financial advice, such as financial planning software, might also offer platforms from which precommitments could be undertaken.

IV. SELF-SORTING TOWARD SELF-CONTROL

As the discussion to this point has suggested, informational burdens make addressing willpower heterogeneity very difficult. In this last Part, I will consider the potential to lower informational burdens by inducing self-selection. After considering the government's potential role in offering precommitment devices, I will consider an approach that relies on self-sorting into tax and regulatory regimes designed to be differentially attractive to high-willpower and low-willpower populations.²³¹

A. PRECOMMITMENT STRATEGIES

The potential role of precommitment in managing self-control problems is well known and has been thoroughly and interestingly discussed in the literature.²³² Given the way I have defined willpower shortfalls here (as distinct from persistent time preferences or unexpected and unregretted preference reversals), precommitment will nearly always be at least a theoretical possibility. Precommitment avoids two primary problems that generally accompany societal attempts to address self-control issues. First, because precommitment is always self-imposed, autonomy concerns are lessened. They are not, however, eliminated—we still must decide when a particular self is entitled to make decisions that are binding on other selves, and under what conditions those later selves

229. For example, financial-literacy education has recently attracted a great deal of attention. For a skeptical view of this approach, see Lauren E. Willis, *Against Financial-Literacy Education*, 94 IOWA L. REV. 197 (2008).

230. See *id.* at 239–40 (distinguishing self-control efforts from education).

231. Again, the binary categories of high and low willpower do not capture the full range of heterogeneity among taxpayers; a finer grained degree of self-sorting might be facilitated through more complex menus. For purposes of illustrating the basic approach, however, two categories suffice.

232. See, e.g., AINSLIE, *supra* note 85, at 125–44; BARON, *supra* note 16, at 480–81; JON ELSTER, ULYSSES UNBOUND 29–34 (2000); Thomas C. Schelling, *Ethics, Law, and the Exercise of Self-Command*, in CHOICE AND CONSEQUENCE 83, 84 (1984); Thomas C. Schelling, *The Intimate Contest for Self-Command*, PUB. INT., Summer 1980, at 94. An unmet demand for commitment features prominently in many economic models of self-control problems. See, e.g., Imrohoroğlu et al., *supra* note 213; Kaplow, *supra* note 5, at 4–5; Laibson, *supra* note 25. For recent experimental work on the demand for precommitment, see Daniel Houser et al., *Temptation and Commitment in the Laboratory* (Institute for Empirical Research in Economics, University of Zurich Working Paper No. 488, 2010), available at <http://ssrn.com/abstract=1615379>.

can undo things.²³³ Second, precommitment relies on the self-identification of those with low willpower and hence avoids problems of overbroad application of a policy that bans or reprices particular alternatives. Precommitment can also be tailored in a variety of ways, either to foreclose future choices or to price them.

A threshold question for tax policy is whether *governmental* precommitment mechanisms are necessary. Some private precommitment devices exist, of course. People can avail themselves of self-exclusion policies offered by casinos,²³⁴ use financial products that embed illiquidity or constrain consumption,²³⁵ pour their money into relatively illiquid repositories like houses,²³⁶ make purchase decisions in ways that intentionally ration access to “vice” goods,²³⁷ and even enter into agreements to forfeit money if they break their promises to themselves.²³⁸ With few exceptions, however, such devices are vulnerable to unraveling through additional private transactions.²³⁹ For example, a person might lock up resources to render them inaccessible until a future date, but their future availability would then provide a basis upon which some other private entity would extend credit.²⁴⁰

233. See *supra* text accompanying notes 66–69.

234. See, e.g., TIM HARFORD, *THE LOGIC OF LIFE: THE RATIONAL ECONOMICS OF AN IRRATIONAL WORLD* 61 (2008) (discussing self-exclusion policy offered by Harrah’s casinos); *Responsible Gaming*, CAESAR’S ENTERTAINMENT, <http://www.caesars.com/corporate/about-us-responsible-gaming.html> (last visited Mar. 21, 2011).

235. See, e.g., AYRES, *supra* note 149, at 169 (noting popularity of a liquidity-constrained bank account introduced by a rural Mindanao bank in the Philippines); Amanda Swift King & John T. King, *Golden Eggs Versus Plastic Eggs: Hyperbolic Preferences and the Persistence of Debit*, 35 J. ECON. FIN. 93 (2011) (observing that consumers may use debit cards as precommitment devices). There has also been significant recent interest in credit cards that allow consumers to set spending limits. See Ron Lieber, *Your Card Has Been Declined, Just as You Wanted*, N.Y. TIMES, Aug. 14, 2010, at B1; Press Release, MasterCard Worldwide, Citi to Implement MasterCard *inControl* (Aug. 17, 2010), available at http://www.mastercard.com/us/company/en/newsroom/pr_citi_to_implement_mc_inControl.html; see also DAN ARIELY, *PREDICTABLY IRRATIONAL: THE HIDDEN FORCES THAT SHAPE OUR DECISIONS* 124–26 (2008) (recounting efforts to generate bank interest in such devices); Angela Littwin, *Beyond Usury: A Study of Credit-Card Use and Preference Among Low-Income Consumers*, 86 TEX. L. REV. 451, 478–80 (2008) (discussing potential for “self-directed credit cards”).

236. See Laibson, *supra* note 35, at 446–51.

237. An interesting example of this approach is the choice to purchase smaller packages of a vice good, which requires giving up volume discounts. See Klaus Wertenbroch, *Consumption Self-Control by Rationing Purchase Quantities of Virtue and Vice*, 17 MARKETING SCI. 317, 325–26 (1998).

238. See, e.g., Michael B. Abramowicz & Ian Ayres, *Compensating Commitments: The Law and Economics of Commitment Bonds That Compensate for the Possibility of Forfeiture*, 100 GEO. L.J. (forthcoming Mar. 2012) (manuscript at 7–17) (on file with *The Georgetown Law Journal*) (offering “commitment contracts” under which individuals can choose to stake money that will go to others (including disliked charities) if the commitment is broken); see generally Bryan et al., *supra* note 33.

239. See, e.g., Laibson, *supra* note 25, at 27 (explaining that private interventions designed to implement desired savings plans “are vulnerable to third party arbitrage”).

240. See *id.* at 27; Chen & Schwartz, *supra* note 63, at 28–29 (explaining that in the absence of governmentally imposed limits “an agent may defeat the purpose of an illiquid savings vehicle by issuing long term debt against it”); see also Gruber & Köszegi, *supra* note 28, at 1286 (observing that if one company offered a precommitment drug that caused pain whenever the person taking it smoked, another company would have an incentive to devise an antidote that would stop the pain); Laibson,

Tax policy already incorporates some precommitment opportunities. Consider, for example, the treatment of early withdrawals from IRAs or 401(k)s,²⁴¹ or the withholding system's accommodation of excessive advance tax payments.²⁴² But there is room for much more innovation in the governmental provision of precommitment products.²⁴³ Setting up such mechanisms would entail administrative costs that might be viewed as a form of in-kind redistribution to low-willpower types.²⁴⁴ However, these transfers would avoid the identification and incentive problems of other compensatory schemes. If retaining the option value of changing one's mind later is more valuable to those with high willpower, then the net benefit of such a device would be greater for those with self-control problems. Just as providing assistive devices in kind to people with disabilities can make those individuals better off without attracting "mimickers,"²⁴⁵ a precommitment product that is valuable to low-willpower people but valueless to high-willpower people would make targeted assistance to the former group self-enforcing. Here, the good provided in kind operates both as a screening mechanism and as a benefit bestowed selectively on the screened group.

Precommitment can only reach true self-control problems—where a person knows the best course of action and wishes to bind herself to take it. It is no good as a remedy for time preferences that society wishes people did not have, nor does it help the individual who lacks insight into the best course of action. Moreover, if the precommitting self is not acting in the composite interests of the self over time, precommitment can generate error costs.²⁴⁶ An additional under-

supra note 35, at 461 (explaining how instantly available credit makes illiquid goods like houses less effective as precommitment devices). Legal interventions might take the form of limiting unraveling of precommitment devices rather than direct governmental provision of them. *See* Laibson, *supra* note 25, at 27 (noting the potential for outlawing the arbitrage opportunities that threaten to unravel private precommitments).

241. *See, e.g.*, Weiss, *supra* note 52, at 1313–14; *see also* Chen & Schwartz, *supra* note 63, at 4, 13 & n.21, 28–29 (discussing governmental limits on accessing IRAs).

242. A large majority of U.S. taxpayers engage in overwithholding or make excessive interim tax payments; similarly, most recipients of the Earned Income Tax Credit fail to take advantage of the advance payment option. *See, e.g.*, Damon Jones, *Inertia and Overwithholding: Explaining the Prevalence of Income Tax Refunds* 1 (Nat'l Bureau of Econ. Research, Working Paper No. 15963, 2010). Although precommitment is far from the only possible explanation for these behaviors, it may well play a role. For an overview of the literature on this question, *see, for example*, Fennell, *supra* note 17, at 148–52. *See also* Jones, *supra* (presenting evidence on the role of inertia in explaining overwithholding behaviors). I thank Ilan Benshalom for comments on this issue.

243. *See, e.g.*, Chen & Schwartz, *supra* note 63, at 4 (proposing state provision of “both partly and totally illiquid savings vehicles”). On the role of public policy more generally in providing “access to scaffolding” for overcoming problems of self-control, *see* Joseph Heath & Joel Anderson, *Procrastination and the Extended Will*, in *THE THIEF OF TIME: PHILOSOPHICAL ESSAYS ON PROCRASTINATION*, *supra* note 70, at 233, 251–52.

244. *See* Mitchell, *supra* note 219, at 1272–75.

245. *See* Weisbach, *supra* note 55, at 87–89.

246. For example, a projection bias could cause an earlier self to commit to a course of action that would turn out to be a mistake. Botond Köszegi and Matthew Rabin give the example of a woman who plans to deliver her child without anesthesia, but then requests anesthetics while in labor. Botond

breadth problem could result if people do not fully appreciate the future self-control problems they will encounter. Here, the problem is not that people are unaware of their optimal available consumption plans (OACPs)²⁴⁷ or how to achieve them; they simply underestimate the difficulty of exerting willpower at the crucial moment of decision.²⁴⁸ Hence, they might fail to engage in precommitment even when it would generate significant gains. Although this lack of self-awareness might seem like a daunting problem, there may be ways to surmount it.

One approach would be to make precommitment mandatory without placing any limits on the content of the choice. David Laibson's "Advance Notification Game," which would require "that consumers choose their consumption level one-period before the consumption actually takes place" represents an interesting elaboration of this idea.²⁴⁹ As long as the deciding self's interests are aligned with the individual's composite preferences, mandatory predecision approaches could help close the utility gap that self-control problems introduce.²⁵⁰ On the other hand, the requirement to decide in advance deprives people of the opportunity to adjust their consumption plans in light of newly learned information.²⁵¹ While the tradeoff may be worth it for people with self-control problems,²⁵² it could impose a net cost on those with high willpower.

Another strategy is to offer choices that operate as precommitments for

Kőszegi & Matthew Rabin, *Revealed Mistakes and Revealed Preferences*, in *THE FOUNDATIONS OF POSITIVE AND NORMATIVE ECONOMICS* 193, 206–07 (Andrew Caplin & Andrew Schotter eds., 2008). This preference reversal could either represent a failure of willpower or a response to an earlier inability to predict pain levels; if the latter, enforcing the woman's initial preference would reduce her well-being. *See id.*

247. *See supra* section I.B.2.

248. *See* O'Donoghue & Rabin, *supra* note 33, at 109–12 (examining effects of naïveté about self-control problems); O'Donoghue & Rabin, *supra* note 19, at 219–38 (analyzing the effects of partial recognition of willpower problems).

249. Laibson, *supra* note 25, at 21–22. As Laibson explains, the idea "would work like a bank account that requires advance notification for withdrawals." *Id.* at 21. In another article, Laibson shows how illiquid goods such as houses might implement such a game, if turning these goods into currency requires time and effort. Laibson, *supra* note 35, at 446–51. Easy availability of credit to borrow against those goods undoes these gains, however. *Id.* at 461–67.

250. *See* Laibson, *supra* note 25, at 21–22.

251. Put a different way, option value is lost when decisions must be made early. All approaches that rely on precommitment have the drawback of reducing future flexibility. *See* Laibson, *supra* note 64, at 467 (noting that "being able to consume in unforeseen emergencies" might offset the losses that liquidity imposes on those who would like to commit not to consume); Chen & Schwartz, *supra* note 63, at 19–20 (discussing flexibility and commitment in the context of choices to invest in partly or completely illiquid instruments); Manuel Amador et al., *Commitment vs. Flexibility*, 74 *ECONOMETRICA* 365 (2006) (modeling tradeoffs between flexibility and commitment for individuals with self-control problems).

252. For example, Laibson concludes based on his model that "[a]ll selves would be willing to pay 9/10 of one year's income . . . to induce the government to implement one of the proposed savings schemes." Laibson, *supra* note 25, at 30; *see also* Houser, *supra* note 232 (examining the price elasticity of demand for precommitment).

sophisticates, but that also attract naifs for independent reasons.²⁵³ For example, O'Donoghue and Rabin explain how an opt-in tax and subsidy system for making an unhealthy food (potato chips) more expensive and a healthy food (carrots) less expensive would attract not only sophisticates who wish to precommit to the repricing scheme, but also health-conscious but willpower-challenged naifs.²⁵⁴ The naifs assume they will want to eat only carrots in the future and elect the scheme simply because it makes their preferred consumption cheaper, yet when temptation arises, the scheme assists them in sticking to their plans.²⁵⁵ This line of analysis suggests that government could take the idea of precommitment a step further by consciously devising menu options for individuals to select among.

B. SELF-SORTING INTO DIFFERENT TAX REGIMES

The idea of allowing people to opt into different tax or regulatory regimes is not new. Indeed, the tax code already permits certain forms of self-classification.²⁵⁶ Self-selection has also received recent theoretical attention as a way of improving the targeting of a variety of social policies,²⁵⁷ including those specifically addressing self-control issues.²⁵⁸ Rather than have policymakers

253. See O'Donoghue & Rabin, *supra* note 10 (tax and subsidy schemes that encourage the consumption of healthy food); Chen & Schwartz, *supra* note 63, at 4–5 (illiquid savings instruments that attract sophisticates for the precommitment and naifs for the higher interest rate). Naifs are also unaware of the risk that their future selves will undermine a given savings plan; their resulting tendency to “overestimate the efficacy of savings” could offset their underestimation of the need to save in the first place. Chen & Schwartz, *supra* note 63, at 5; see also O'Donoghue & Rabin, *supra* note 33, at 119 (explaining that even though “sophistication helps you when knowing about future misbehavior increases your perceived cost of current misbehavior . . . [s]ophistication hurts you when knowing about future misbehavior decreases your perceived cost of current misbehavior”). Another intriguing approach to naïveté would actually leverage the time biases of naifs to encourage precommitment. Recent work has argued, for example, that allowing people to auction off the right to receive a set amount of money if they fail to meet self-set goals could attract hyperbolic discounters by making a lump of cash available upfront for taking on the challenge. See AYRES, *supra* note 149, at 60; Abramowicz & Ayres, *supra* note 238, at 13–15.

254. O'Donoghue & Rabin, *supra* note 10, at 189–90.

255. *Id.* Note that the election between tax regimes in this context is just a weaker form of requiring advance notification of consumption. In effect, one chooses a consumption plan that one can later escape by paying a higher price. O'Donoghue and Rabin also discuss a more explicit version of this preplanning notion—nonrefundable coupons for purchasing certain goods. *Id.* at 190.

256. See, e.g., Heather M. Field, *Choosing Tax: Explicit Elections as an Element of Design in the Federal Income Tax System*, 47 HARV. J. ON LEGIS. 21 (2010); Erzo F.P. Luttmer & Richard J. Zeckhauser, *Schedule Selection by Agents: From Price Plans to Tax Tables 2* (Nat'l Bureau of Econ. Research, Working Paper No. 13808, 2008), available at <http://www.nber.org/papers/w13808>.

257. See Alex Raskolnikov, *Revealing Choices: Using Taxpayer Choice To Target Tax Enforcement*, 109 COLUM. L. REV. 689 (2009) (suggesting that tax enforcement could be targeted more effectively by offering taxpayers a choice between two enforcement regimes that would be differentially attractive to differently motivated taxpayers); Weisbach, *supra* note 55, at 93–99 (discussing use of differentially attractive packages to redistribute toward people with disabilities); Luttmer & Zeckhauser, *supra* note 256, at 17–25 (modeling and estimating the gains that might be achievable with income tax schedule selection).

258. E.g., O'Donoghue & Rabin, *supra* note 10, at 189–90 (discussing the potential for sorting into “type-specific optimal tax schemes”); Susanna Estaban, & Eiichi Miyagawa, *Optimal Menu of Menus*

categorize people based on some observable characteristic,²⁵⁹ people categorize themselves. Such self-sorting can harness private information and partition the population in ways that facilitate tailored treatment of the subgroups.²⁶⁰ Willpower offers a paradigm case in which self-selection is feasible. By definition, willpower deficits involve a level of self-awareness about the best available plan coupled with an incapacity to carry it out. People in this position will uniquely value policy instruments that can bring outcomes into line with their preferences.

For such self-sorting to generate benefits, however, it is necessary that the alternatives not only be differentially attractive to groups of people who vary along a dimension relevant to policy, but also capable of delivering better-tailored policy treatments to each of those groups. Thus, as Alex Raskolnikov has explained in another tax context, the alternatives must be designed to accomplish two goals: effectively separating the population into groups for purposes of differential treatment (“separating”) and actually applying appropriately different treatment to the groups (“targeting”).²⁶¹ Not every feature of the respective bundles needs to serve both objectives.²⁶² For example, some aspects of a given package might be included to repel people with particular characteristics without delivering any special benefits to those who are not repelled.²⁶³ Similarly, a feature that would be attractive to both groups can be included in one of the bundles, as long as it is mixed with enough other differentially attractive elements that sort the population. Nonetheless, both goals must be kept in mind in composing the alternatives.²⁶⁴

Could we devise tax and regulatory packages that would harness private information about willpower levels, split the taxpaying population along willpower lines, and deliver appropriate treatment to those with lower willpower levels? Posing the question in this way reopens the issue of what constitutes “appropriate treatment,” bringing us back to the three basic strategies discussed earlier—compensation, repricing, and choice removal. Although these strategies

with *Self-Control Preferences* (Columbia Univ. Dep’t of Econ., Discussion Paper No. 0405-11, 2004), available at <http://digitalcommons.libraries.columbia.edu/econ.dp/54> (modeling how sellers might gain from offering consumers multiple menus to select among, where some consumers have self-control problems and would prefer a menu with fewer choices).

259. George A. Akerlof, *The Economics of “Tagging” as Applied to the Optimal Income Tax, Welfare Programs, and Manpower Planning*, 68 AM. ECON. REV. 8, 8 (1978) (explaining how characteristics that correlate with underlying differences such as poverty can be used to “tag” individuals for different tax rates or other policy treatments).

260. See, e.g., *id.* at 16–17 (noting how a work training program may tag currently unskilled individuals through a combination of eligibility requirements and self-selection, and thereby facilitate a more tailored delivery of assistance).

261. Raskolnikov, *supra* note 257, at 739–40 (distinguishing “separating” from “targeting”).

262. See *id.*

263. See, e.g., Estaban & Miyagawa, *supra* note 258, at 3 (explaining that sellers might “decorate” one menu with tempting items that would be irrelevant for one consumer group but aversive to another group with particular self-control problems).

264. See Raskolnikov, *supra* note 257, at 740 n.206 (counseling caution in adding features that pursue one goal at the expense of the other).

are not equally easy to implement through self-selection, each could be pursued in some fashion using tax menus. Subsections 1 and 2 below examine self-selected sin taxes and intrapersonal redistribution choices, which would implement repricing and choice removal strategies, respectively. Subsection 3 takes on the more challenging task of pursuing a compensation strategy through willpower-sensitive tax menus.

1. Selecting Sin Taxes

One straightforward way of selectively delivering precommitment opportunities through the tax system would be to simply allow people to choose among tax levels in certain contexts. For example, Jay Bhattacharya and Darius Lakdawalla have suggested that smokers could voluntarily purchase "smoking licenses" that would commit their future selves to cigarette taxes.²⁶⁵ Many variations on this theme might be devised, from the self-selected tax and subsidy scheme for food choices discussed above²⁶⁶ to choose-your-own-sin-tax approaches that allow people to set their own tax levels for particular vices.²⁶⁷ Moreover, although traditional "vices" provide obvious candidates for self-selected taxes, people might be given opportunities to reprice other sorts of saving and spending behaviors as well. The present tax code already lets people opt into precommitments with respect to retirement funds,²⁶⁸ and innovative extensions of this idea could give people more control over the prices of particular consumption choices.

More unconventional regulatory choices might also be offered. Consider, for example, another O'Donoghue and Rabin idea: in order to purchase cigarettes, people would be required to obtain a special photo ID that would cost \$5,000 and would entitle its bearer to 2,500 tax-free packages of cigarettes.²⁶⁹ Only those who planned to smoke a great deal would get their money's worth out of the license, and hence it would be expected to attract those who had rationally decided to pursue a cigarette addiction,²⁷⁰ but not those who planned to smoke only a little and then quit.²⁷¹ If we assume that many of those in the latter category would experience unforeseen willpower problems that would cause them to experience utility-diminishing addictions, then the expensive license would provide a valuable deterrent without getting in the way of any rationally

265. Bhattacharya & Lakdawalla, *supra* note 10, at 15–19.

266. See *supra* text accompanying notes 253–54.

267. See Lee Anne Fennell, *Revealing Options*, 118 HARV. L. REV. 1399, 1482–85 (2005) (presenting a variation on Bhattacharya & Lakdawalla, *supra* note 10, that would allow smokers to choose their own tax level and create options for their later selves to exercise).

268. See *supra* text accompanying note 241.

269. O'Donoghue & Rabin, *supra* note 10, at 190. The authors add that "[i]f there were concerns that this scheme would prevent optimal experimentation, we could also issue a one-time 'learner's permit' allowing a person to purchase up to 10 packs of cigarettes." *Id.*

270. See generally Becker & Murphy, *supra* note 28.

271. In this context as in others, lawbreaking (here, obtaining cigarettes through illegal channels without a license) would undermine the desired results.

planned addiction.²⁷² This very interesting repricing strategy makes cigarettes appear artificially expensive on a per-pack basis, given the unrealistically low expectations that low-willpower people would have about their future smoking plans.

Self-selected repricing strategies like these can enable people to fine-tune their own incentive structures. To the extent these systems of rewards and penalties foster OACP-compatible decisions by controlling internalities, they can usefully advance well-being. But repricing strategies can be tricky, for the reasons already noted: if the higher prices do not produce the desired behavioral result, individuals may end up bearing the costs of the penalty as well as the costs of the unwanted behavior, along with exercise costs associated with failed attempts at resistance. Thus, even self-selected sin taxes introduced into a tax system that raises revenue for public goods may produce redistribution from low-willpower to high-willpower people. On the other hand, such repricing may prompt regular exertions of willpower that help to strengthen resolve, dodging the erosion costs that other approaches might present.

2. Choosing Patterns of Intrapersonal Redistribution

Instead of selecting taxes on particular activities, people might instead choose among different life-cycle patterns of tax burdens and benefits. A number of tax provisions already implicitly or explicitly allow taxpayers to choose when tax payments will be made,²⁷³ and the potential for further choice along these lines has been noted.²⁷⁴ Here, it becomes important to take cognizance of the intrapersonal redistribution that is already built into a progressive annual taxation system.²⁷⁵ This redistribution from the high-earning selves to the low-earning selves is likely to be more attractive to those who are less able to rearrange money within the life cycle, whereas those who are good at spreading their consumption optimally would prefer lifetime averaging.²⁷⁶

As a first cut, then, we might imagine policymakers allowing taxpayers to present themselves *either* as separate annual temporal entities with respect to

272. See O'Donoghue & Rabin, *supra* note 10, at 190.

273. For example, taxpayers can prepay (or overpay) taxes through the withholding and estimated tax systems, can choose between a currently taxable Roth IRA and a tax-deferred traditional IRA, and can decide when to sell assets and realize a gain or loss.

274. See, e.g., Polinsky, *supra* note 5, at 249 (discussing a plan in which households could choose to defer a portion of their tax payments); Lee Anne Fennell, *Death, Taxes, and Cognition*, 81 N.C. L. REV. 567, 649–52 (2003) (discussing estate tax prepayment); Jerry Gleeson, *Congress Mulls "Prepaid" Estate Tax*, REGISTERED REP., May 14, 2010, http://registeredrep.com/wealthmanagement/estateplan/congress_mulls_prepaid_estate_tax_0514/.

275. See, e.g., Polinsky, *supra* note 5, at 230.

276. This preference is sensitive to the collection method in place. See Liebman, *supra* note 4, at 31–50 (analyzing the impact of averaging on taxpayers with different earning patterns); see also Shaviro, *supra* note 3, at 762–63 (discussing Vickrey's criterion regarding the relationship between the tax due in a given period and the income in the prior period under lifetime averaging and noting its "poor intellectual fit" with the system's assumption that taxes should not be sensitive to earning patterns).

tax burdens and distributive considerations *or* as fully integrated lifetime entities for whom burdens and benefits should be calculated on a life-cycle basis. But because factors other than willpower shortfalls can impede the movement of money within the life cycle, these choices would not line up systematically with willpower levels. High-willpower people who lack liquidity would be extremely interested in intrapersonal redistribution that moves money earlier in the life cycle but quite disinterested in intrapersonal redistribution that moves money later in the life cycle. Conversely, low-willpower people (in their composite reflective states) would not want any redistribution that expands their early-life consumption opportunities beyond their OACP. However, they would be quite interested in redistribution to those spots in the life cycle that they would, left to their own devices, have a tendency to leave depleted.

Although hyperopic low-willpower people present a complication, we might generalize and say that forward (later in time) intrapersonal redistribution will typically be more attractive to those who know they have low willpower and wish to precommit, whereas backwards (earlier in time) intrapersonal redistribution will be more attractive to those with high willpower. Tools like age-specific taxation or flexible tax payment options can increase or decrease the amount of intrapersonal redistribution that occurs in either direction.²⁷⁷ Enabling people to alter their choice sets by making funds less accessible during certain portions of the life cycle amounts to a choice-removal strategy and one that might provide well-being benefits to low-willpower people. This result depends on choices being self-constrained in a manner consistent with the individual's OACP, however.²⁷⁸ Further, to the extent that choice-removal mechanisms reduce the need for self-directed patterns of savings, erosion costs could rise.

In addition, there are many considerations unrelated to willpower that would cabin the degree to which a choice-based approach to lifetime benefits and burdens could be implemented. For example, we would not want to allow even the highest willpower individual to take all of her expected Social Security benefits in early adulthood, given both the moral hazard concerns regarding future taxpaying and the externalities associated with unalleviated poverty late in life. Nonetheless, offering some degree of choice about the extent and direction of the flow could prove useful for both high-willpower and low-willpower individuals.

3. Targeting Low Willpower with Tax Menus

The alternatives discussed thus far roll together the functions of separation and targeting—the targeted treatment applied to the separated groups is the very

277. See *supra* note 274 and accompanying text.

278. Although errors in this regard deserve attention, it should also be noted that willpower failures themselves often remove choices in a manner that is inconsistent with an individual's OACP (as where spending decisions make a future quality of life unattainable).

thing that makes the separation effective.²⁷⁹ Suppose, however, that we wished to further address the utility gap between high-willpower and low-willpower people through a compensatory tax strategy.²⁸⁰ Redistribution from low-willpower people to high-willpower people cannot proceed on such a self-separating basis; because everyone likes receiving redistributive payments, redistribution (the targeted treatment) cannot itself serve as a separating mechanism. If we wanted to include such redistribution, we would need to devise packages that are capable of performing the separating work in a manner robust enough to withstand the introduction of a universally valued element into one of the packages. In other words, we have to insert something into the low-willpower bundle that is more aversive to high-willpower people than the added money is attractive without making it so aversive as to drive off low-willpower individuals.

To fix ideas, consider two tax packages, both of which would begin with a progressive wage tax that bases ultimate tax burdens on an entire lifetime of earnings. In both packages, tax collections and the payment of benefits would be arranged so as to consciously carry out a fair measure of intrapersonal redistribution. This redistributive element would be timed differently under the two packages, however. In Package One, intrapersonal redistribution would operate primarily to move money to earlier points in the life cycle. This feature would be especially attractive for liquidity-constrained people who have a high degree of willpower, because it would relax an outside constraint that impedes optimization. Package Two would skew intrapersonal redistribution in the opposite direction; it would be expected to attract lower willpower people who desire assistance in moving money later in the life cycle.

In addition, each package would offer some additional provisions that we might expect high- and low-willpower people to find differentially attractive. Package One taxpayers would be granted flexible tax repayment terms that would permit them to shift payment for some of their lifetime tax burden into their later years, which would further help to relieve liquidity constraints.²⁸¹ Package Two taxpayers might also find the flexibility attractive in theory, but their self-control problems would make deferring a tax burden dangerous for them. Instead, Package Two taxpayers would be subject to customized borrowing and spending restrictions²⁸² as well as carefully scheduled tax payments.

279. See *supra* text accompanying notes 261–64.

280. What follows is an analytic investigation into this possibility, not a normative endorsement of such a compensatory approach. Before rejecting this form of redistribution, however, the implicit redistributive effects of alternative approaches should be examined. See Mitchell, *supra* note 219, at 1269–75 (critiquing the redistributive element embedded in libertarian paternalism). Some seemingly neutral policies, such as those that withdraw choices across the board, could have the effect of burdening high-willpower people in order to benefit low-willpower people. See *supra* note 219 and accompanying text.

281. See, e.g., Polinsky, *supra* note 5, at 249.

282. While it would be possible to permit taxpayers some degree of choice as to how these limits would work, and customization to account for health, wealth, family, and lifestyle factors could be

Table 3: Two Packages

	Package One	Package Two
Intrapersonal Redistribution	Skews Earlier	Skews Later
Other Provisions	Flexible Tax Payment Terms	Customized Borrowing and Spending Restrictions
Tax Rates	Higher	Lower

These restrictions should be attractive to low-willpower individuals as a form of precommitment that helps to advance their OACPs, but high-willpower individuals would likely view the limits as aversive intrusions, given their ability to achieve their OACPs on their own.

If the features just described were effective enough in separating the two populations, it might be possible to add some modest measure of redistribution to the treatment mix, as indicated in the third row of Table 3. Before discussing the extent to which this might be possible, it is worth considering how this added element would fit together with the other parts of the plan to influence willpower-related costs. The first two rows of Package Two represent choice-removal strategies that we might expect to reduce both failure costs and exercise costs in the domains to which they apply. We would generally expect a compensatory approach to reduce the costs of failure but increase the incidence of failure (even while reducing exercise costs) by rendering failure less costly. Yet, it is important to recognize the extent to which that result is dependent on *the willpower failures themselves* constituting the basis upon which compensatory payments are made. If, instead, it were possible to identify low-willpower people based on their election of choice-limiting products and services that hold uniquely positive value to them (that is, the items in the first two rows of Package Two), directing resources to such individuals would not carry the same moral hazard. Instead, a low-willpower person who receives compensatory payments based on these other separating criteria would still do best by minimizing failures in those domains in which her choice has not been self-restricted. Although she would exert effort in the process, these exercise costs could also prove functional in combating the erosion costs that might accompany a more thoroughgoing restriction of choice.

Obviously, a primary concern with a "choose-your-tax-regime" plan is that

readily incorporated, it is probably unrealistic to suppose that taxpayers could enlist the government's help in following any consumption pattern they happen to prefer. A particular concern is whether the program could offer any help to the hyperopic oversaver. It would be theoretically possible to let such a person precommit to a "sensible" spending plan that capped the amount of savings as well as the amount of spending in each period, but it is unclear whether support for such an approach would exist. Despite some excellent theoretical work on the topic, concerns about hyperopia have received very little attention in the policy realm.

people will attempt to obtain more favorable treatment than the plan's design intends to give them. Thus, it is possible that some people without self-control problems would accept Package Two's aversive and unnecessary (for them) restrictions on borrowing and consumption in order to get the lower tax rate. Not only would this produce redistribution in the wrong direction, it would also involve deadweight loss (the unwanted restrictions).²⁸³ The opposite classification problem could also result: those who are naïve about their severe self-control problems might elect Package One in order to avoid restrictions on their borrowing and consumption and end up much worse off—more heavily taxed and yet unable to actually move money optimally within the life cycle. Both possibilities raise the question of whether some limits could or should be placed on the choice of plan.

There are a variety of possibilities in this regard. The softest approach would be simply to have a different default package apply depending on wealth or savings levels (relative to others in one's income band and life cycle stage) and allow people to opt out if they chose. Other alternatives would make information about wealth accumulation give rise to presumptions of varying strengths about the appropriate classification; those presumptions might be rebutted with sufficient evidence of saving and spending patterns. But such a presumption-based approach undercuts the notion of self-selection, imposes new informational and administrative burdens, and would quickly become unacceptably intrusive.

Another alternative would be to incorporate information about wealth explicitly into Package Two's design so that the tax advantages (but not the other features) would be phased out as accumulated wealth increases. For example, when a certain threshold of wealth is reached (which would vary based on age),²⁸⁴ the tax schedules for the two packages would become identical. However, people opting for Package Two would still be able to receive the in-kind benefits of borrowing and spending restrictions and forward-skewed intrapersonal redistribution. In effect, this approach would involve "tagging" people who opt for Package Two depending on their wealth accumulation levels²⁸⁵ and then customizing the treatment that they receive based on that information. Wealth might seem like an unpromising basis for tagging, given that it is mutable. But complete immutability is not required for tagging to produce

283. On the other hand, the low tax rate might attract some people who lack knowledge of their own self-control problems and thereby provide the benefits of precommitment to those who would otherwise not seek them out. *See supra* text accompanying notes 253–54.

284. There is evidence that self-control problems fall with age. *See* Ameriks et al., *supra* note 25, at 970. But wealth accumulations at older ages would continue to reflect the effects of willpower exercised (or not) at earlier ages. The idea that capital taxation might be varied by age is raised in James Banks & Peter A. Diamond, *The Base for Direct Taxation* 59 (Mass. Inst. of Tech. Dep't of Econ., Working Paper No. 08-11, 2008), available at <http://ssrn.com/abstract=1112821>.

285. *See generally* Akerlof, *supra* note 259 (developing the concept of "tagging," in which certain characteristics are used to identify groups of taxpayers for particular tax or policy treatments).

gains,²⁸⁶ and, as discussed below, some of the program details contemplated here would make strategizing difficult. It is also perhaps notable that wealth is already used as a tag of sorts when asset thresholds are employed as criteria for certain social welfare programs.²⁸⁷

The rationale for building in information about wealth could rest in part on an assumed correlation between wealth levels and willpower levels, holding income and life stage constant.²⁸⁸ But we might also think that willpower lapses are more damaging for those with less available wealth as a buffer. Thus, even if a person's asset classification offers only a weak signal of willpower, that information may still provide a sensible basis for withdrawing the benefits of a lighter tax schedule—the only piece of Package Two's treatment that operates at cross-purposes with the packages' separation function.²⁸⁹

Of course, introducing a wealth criterion presents a new worry—that high- and low-willpower people alike might shun savings in order to qualify for lower tax rates. Introducing thresholds or breakpoints between net worth classes presents additional concerns—that people will have a strong incentive to alter their wealth accumulation behavior to stay in the more lightly taxed group, and that people who differ only slightly in their holdings but lie on opposite sides of the dividing line will be unfairly and arbitrarily subjected to different tax treatment. These latter concerns could be ameliorated somewhat by adding a “phase-out” range to soften the cliff effect, as well as by resetting the breakpoints regularly based on criteria that are undisclosed in advance and produced through some element of randomization.²⁹⁰

The broader concern that people will shun savings could be addressed in some measure by the binding limits on borrowing and spending that come with Package Two. Given those limits, people choosing Package Two cannot consistently enjoy high earnings without also accumulating wealth that, over time, will move them into higher asset brackets. Choosing Package Two, then, means voluntarily ceding some control over the means through which one might

286. See *id.* at 15–16 (discussing and modeling cases of endogenous group membership—situations where “people, by some effort or with some loss of utility, may alter their characteristics, thereby becoming members of a tagged group”); see also Kyle Logue & Joel Slemrod, *Genes as Tags: The Tax Implications of Widely Available Genetic Information*, 61 NAT'L TAX J. 843, 849 (2008).

287. See, e.g., Robin Boadway et al., *Agency and the Design of Welfare Systems*, 73 J. PUB. ECON. 1, 2 (1999) (listing “asset wealth” among the “personal characteristics” used to determine eligibility, and connecting the eligibility determination process to Akerlof's idea of “tagging”); David A. Weisbach & Jacob Nussim, *The Integration of Tax and Spending Programs*, 113 YALE L.J. 955, 999–1000, 1008–10 (2004) (discussing asset limits in the food stamp program).

288. See *supra* notes 187–88 and accompanying text.

289. See *supra* text accompanying notes 261–64 (on targeting versus separating).

290. Cf. Jonathan Remy Nash, *Allocation and Uncertainty: Strategic Responses to Environmental Grandfathering*, 36 ECOLOGY L.Q. 809, 815–28 (2009) (advocating “retrospective allocation” mechanisms that introduce uncertainty into grandfathering schemes in an effort to reduce strategic behavior). For further analysis of how the use of categorical information (tagging) might be combined with income where there is heterogeneity among those within categories, see Ritva Immonen et al., *Tagging and Taxing: The Optimal Use of Categorical and Income Information in Designing Tax/Transfer Schemes*, 65 ECONOMICA 179 (1998).

ordinarily attempt to game the system. Of course, people would continue to have control over their earnings, and they could certainly reduce their wealth indirectly (and thus qualify for lower rates) by reducing their earnings. But any tax on labor earnings could be expected to disincentivize labor, even if wealth were not made part of the picture.

The overall program could be designed to build in some additional protections against strategic behavior. For example, we might tinker with the revocability of the choice among packages. If the choice were made irrevocable (for a time), or if changes required incurring costs, then a high-willpower person might not find it worthwhile to sneak into the Package Two ranks. Even if her wealth level is presently low enough to deliver her a tax break, she will eventually end up paying tax rates that are just as high as under Package One as her wealth accumulates, but she will still be stuck with the annoying borrowing and spending limits and intrapersonal redistribution that runs in the wrong direction. It is still possible that a high-willpower person would gain enough in tax breaks during low-earning years to make this gambit worthwhile, but the extra liquidity that she can get through Package One's flexible tax repayment terms may prove even more attractive. It would be unworkable to lock people into their package choice for all time, but shorter limits and penalties for shifting could keep people from finding it profitable to opportunistically "package surf."

Would all this design effort be worthwhile? The answer is far from clear. Enabling both high-willpower and low-willpower people to better approximate their OACPs seems quite attractive, as does the potential to reduce exercise costs and failure costs simultaneously, while directing resources to those who are the most willpower challenged. It is also possible that treating willpower more selectively and surgically could forestall more socially costly initiatives that would block certain consumption choices for high-willpower types as well as low-willpower types. But there are many other considerations that would bear on the feasibility and desirability of such an alternative, including administrative costs²⁹¹ and concerns about unwarranted governmental leverage over personal decisions.²⁹² Moreover, there could be unwanted effects on the inculca-

291. See Field, *supra* note 256, at 22–30 (discussing the added burdens of complexity and administration that may be associated with tax provisions that allow for explicit elections).

292. For example, we might worry that low-income people would feel pressured by lower tax rates into letting the government take over their personal financial choices. The extension of flexible repayment terms and early life-cycle liquidity to the Package One taxpayers would help to counter that concern. In addition, both of the tax schedules would presumably have a zero bracket and would interact with existing programs like Temporary Assistance to Needy Families (TANF) and the Earned Income Tax Credit (EITC) in ways that would keep low-income people from being forced into a desperate bargain with the government. But this merely shifts our concern up the income scale: perhaps middle-class people would find Package Two's lower rates irresistible. There is, in fact, no way to structure an incentive without having it attract some people who would not otherwise choose that alternative. Hence, we must ultimately decide whether greater governmental control over personal saving and spending decisions seems legitimate.

tion of willpower and related values throughout society (erosion costs), if we let people opt out of controlling important aspects of their own consumption paths. The interaction of this approach with other measures designed to address externalities would also require attention.

My point in sketching this example is not to advocate it, nor even to provide a comprehensive review of its merits, but rather to provide a starting point for thinking about how willpower differences might be addressed through policy. Governmental decisions already implicate willpower, as we have seen, and it is entirely possible that additional interventions will be in the offing. In considering these alternatives, we would do well to consider whether and how the potential for self-selection could deliver benefits at lower cost. Indeed, one potential takeaway lesson is the difficulty in engineering strategy-proof mechanisms for moving money between people of different willpower levels and the comparatively greater traction that intrapersonal transfers and tools might provide.

CONCLUSION

Tax policy grapples with numerous dimensions of human heterogeneity.²⁹³ This paper has intentionally focused on just one narrow slice—variations in willpower. My analysis has necessarily filtered out much that is important and relevant to devising tax policy. But I hope to have added an accessible account of how and why willpower heterogeneity matters to tax policy, a framework for evaluating policy efforts, and some ideas about how self-selection might be employed to advance the treatment of willpower heterogeneity. As modeling and empirical work continues on cognitive features, including willpower, it will become increasingly important to understand how these lessons map onto real and proposed tax systems. Mechanisms that can induce populations to self-sort into groups that share cognitive traits can make for less intrusive and more tailored social policy. I hope that the ideas presented here will lead to further work along these lines.

293. For a recent examination of some of the complexities that heterogeneity introduces, see Louis Kaplow, *Optimal Policy with Heterogeneous Preferences*, B.E. J. OF ECON. ANALYSIS & POL'Y (Sept. 12, 2008), available at <http://www.bepress.com/cgi/viewcontent.cgi?article=1947&content=bejeap>.